

## Email C. Group 020. Cereal Grains - Summaries

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| <u>Proposal A. (ICGC:</u><br>20A. Small Grains<br>20B. Maize, Grain Sorghum and Millet<br>20C. Rice | <u>Proposal B:</u><br>20A. Wheat<br>20B. Barley<br>20C. Rice<br>20D. Maize, Millet and Sorghum<br>20E. Pseudocereals<br>20F. Sweet Corn |
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**Note: See page 21 for potential compromise**

| What was the rationale for separating or combining pseudocereals with other small grains? |   |
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| Country   | Response  |
| Canada:   | Canada supports combining pseudocereals with other small grains based on (1) both cereals as a member of Gramineae and pseudocereals produce seeds which are consumed as grains, (2) the Cereal crop group in Canada includes crops such as buckwheat, which are pseudocereals, (3) residue data has only been required for wheat, barley, sweet and field corn to establish MRLs for the Cereal group, (4) no exceedances of MRLs for the pseudocereals have been observed and (5) Proposal B would require generation of additional residue data increasing the regulatory burden of registering pesticides for cereal grains and finally (6) it will be difficult to choose a representative commodity due to varied production of pseudocereals.  |
| Chile:  | We considered it is not necessary separating the pseudocereals with other small grains because they have similar (1) similar production practices and (2) similar GAP for pesticide uses  |
| Ecuador:  | The rationale to combine pseudocereals with other small grains, is considered according to its consumption way, since in both cases the seed is consumed at a mature stage, and after a cooking or industrialization process  |
| European Union:   | <p>The group of plants called 'pseudocereals' is in itself a heterogeneous group from the botanical point of view.</p> <p>Belonging to the same botanical family is not one of the agreed criteria to establish groups and subgroups. However, in the case of pseudocereals the group is heterogeneous, comprising species belonging to a range of different families (Chaenopodiaceae, Amaranthaceae, Lamiaceae) and not related to the family Poaceae, to which cereals belong.</p> <p>These species share with cereals the culinary traditions, hence the common name of 'pseudocereals'. The very small seeds are milled into sort of flours and often used to bake bread-like aliments, quite similarly to wheat or barley. From the point of view of the pesticides residues, culinary traditions do not seem to be an important element to justify mingling these plants with cereals.</p> |
| India:  | India need more time to provide qualified comments after discussing the issues/concerns with Scientists working in cereal group.  |

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| Indonesia:   | <p>Pseudocereal is a group of plants, not including grasses family (<i>Poaceae</i>) such as buckwheat, Quinoas, Breadfruit, amaranth, chia. Small grains are small kernels, including grasses family i.e. sorghum, millet, miscellaneous grain (job tears and wild rice).</p>  |
| Japan        | <p>Japan is of the view that the subgroup of pseudocereals should be separated from the subgroup of other cereal grains such as wheat or barley because of their difference in factors such as botanical characteristics, growth habits and GAPs.</p> <p>Although taxonomic classification itself is not an agreed criterion to establish crop/commodity grouping, commodities proposed to be included in pseudocereals subgroup do not belong to the <i>Poaceae</i> family unlike other cereals such as wheat, rye, triticale, barley, oats, rice, maize, sorghum, millet. In terms of photosynthetic pathway of plants, pseudocereals such as amaranth, buckwheat and quinoa are dicotyledonous <math>C_4</math> plants that can generally grow under high temperature with a high light intensity while wheat, barley, rye, triticale and oats are monocotyledonous <math>C_3</math> plants that become less efficient as the temperature increases. In addition to the difference in plant metabolism, as profiles of pests and diseases, and the necessity of pesticides are different, GAPs are not similar between pseudocereals and other cereal grains.</p> <p>For example, comparative information is provided for buckwheat, one of the most popular commodities of pseudocereals, and wheat/barley as follows:</p> <p>Wheat and barley are known to be bothered by pests such as aphids, leafminers snow fleas and rice crane flies as well as many diseases including powdery mildew, Fusarium head blight, Scab, Fusarium foot rot, black rust, stripe rust, brown rust, loose smut and wheat mosaic virus. On the other hand, buckwheat is bothered by few pests and diseases such as armyworm and crown and root rot. Due to less necessity for crop protection for buckwheat in Japan, small number of pesticides are registered for buckwheat and buckwheat is generally grown without the necessity of pesticides in major production area. Due to these difference in types and the occurrence and of pests and diseases, GAPs of buckwheat are not similar to those of wheat/barley.</p> <p>Difference in periods from planting to harvest between buckwheat and wheat/barley also affect the necessity of herbicides. In general, for buckwheat, it usually takes only 2 – 3 months from planting to harvest, while for wheat and barley, it takes 7 – 9 months from planting to harvest, although there periods may differ according to cultivated species and climatic conditions. As opposed to wheat and barley, buckwheat can generally be grown without post-emergence herbicides because it can outcompete weeds due to its rapid growth.</p> |
| New Zealand: | <p>Recognising that pseudocereals are minor crops, with little likelihood that specific residue data will be generated to support Codex MRLs, we support the inclusion of the pseudocereal commodities in the small grains sub-group.</p>  |
| Peru         | <p>Peru expresses that he agreed with the proposal of creating a single set of Small Grains, because production practices, technology and plant health problems are similar to conventional production areas; because no intensive</p>   |

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|                | <p>production or small scale is generally organic and does not use pesticides.</p> <p>We believe it is not necessary to have two separate subgroups (where crops are similar) and need additional data of field trials for pseudocereals waste. The requirement for a separate subgroup for pseudocereals likely result in the absence of tools for producers of these crops, because for registrants, not the cost of conducting the test data field is justified and do not invest the funds needed to carry out these studies.</p> <p>FAO has also cataloged quinoa as one of the most important food worldwide, besides being a source of solutions to the serious problems of human nutrition, for its exceptional balance of protein, fat, oil, starch and contain a high degree of amino acids such as lysine, methionine and cystine; essential for human development.</p> <p>Currently, the international market demand significant volumes of this food, and its wide genetic variability allows Peru to adapt in different ecological environments such as valleys and coastal areas, with different conditions of relative humidity, temperature and altitude; making its cultivation spread to the valleys of the coast, with the consequent appearance of pests that undermine their performance and forces farmers to use pesticides.</p> <p>Currently in Peru, quinoa represents 88% of our total exports of Andean grains, a figure that makes the protagonist as leading flag products; that is benefiting and improving the quality of life of thousands of small and medium producers of quinoa in the region of the highlands and coast of the country. In the Andean region of Peru, plantings increased by 20% and costs, 250%, explaining them the strong momentum that is giving this important production chain in this region.</p>   |
| United States: | <p>The United States supports the creation of a single small grains subgroup. There is little value in separating the Small grains into a Wheat 20A subgroup and a Barley 20B subgroup and also creating a separate subgroup 20E Pseudocereals grains. Most of the minor commodities (Annual Canarygrass, Cram-cram, Black Fonio, White Fonio, Huazontle, Inca wheat, Job's tears, Rye, Teff and Triticale) listed in (alternate) Proposal B for the 20A Wheat subgroup and 20B Barley subgroup are proposed for inclusion in both subgroups with barley and wheat being the major difference. The United States does not see the value in having two separate subgroups where the crops are similar and the main difference between these groups is wheat and barley. Instead the United States recommends that one subgroup be established but, as suggested by New Zealand during the 2015 CCPR, there be further discussion as to whether data be required for wheat and barley as representative commodities for the subgroup.</p> <p>The United States especially does not agree that separate residue field trial data are needed for the pseudocereals. In the United States approximately 95 millions of acres of corn were harvested in 2012, 48 million acres of wheat, 7 million acres of sorghum, 2.7 million acres of rice, and 2 million acres of barley. In contrast, only approximately 33,600 acres of buckwheat and 940 acres of amaranth were grown in the United States. These are the only two crops in the proposed pseudocereals subgroup with any reported acres grown in the United States in 2012 (<a href="http://www.agcensus.usda.gov/">http://www.agcensus.usda.gov/</a>).</p> <p>Representative commodities in the general principles are supposed to be major in terms of production and/or consumption. There is no pseudocereal that meets that criteria. Further, buckwheat is currently a member of the U.S.</p> |

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|  | <p>cereal grain group and there are no reports of over tolerance residues (Pesticide Data Program, <a href="http://www.ams.usda.gov/datasets/pdp">http://www.ams.usda.gov/datasets/pdp</a>) to suggest that additional residue field trial data for buckwheat are needed or that the present situation of having the other cereals grains as the representative crops for buckwheat has resulted in an unsafe food supply or an under-estimation of risk.</p> <p>The United States does not believe requiring additional residue field trial data for the pseudocereals is necessary or that having these additional data will be in any way informative. Additionally, there does not appear to be a clear representative commodity for the proposed pseudocereals subgroup since none of the crops proposed for inclusion in this subgroup are produced on a large scale, and production data do not exist for most of these crops. Requiring a separate subgroup for the pseudocereals will likely result in fewer to even possibly the absence of tools for growers of these very minor crops since it is not likely data will not be generated to support this subgroup since the total acres grown does not justify the cost of conducting the field trial data. Registrants are unlikely to spend the funds needed to conduct the necessary studies. Finally, the United States does not believe that having the additional field trial data on the pseudocereals will make the world's food supply safer.</p> |
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| What criteria were used to separate or combine pseudocereals with other small grains? |   |
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| Country   | Response  |
| Canada:   | Pseudocereals and small grains have been included together in the Canadian crop group. The representative crops are barley, wheat and corn, which have historically been shown to adequately cover residues in pseudocereals. Proposal B suggests different subgroups, primarily due to the ARLA principle. Proposal B results in a large number of representative crops, which can be extended to only a small number of crops. Proposal A minimizes the number of representative crops, while maximizing the additional crops that benefit from the crop group concept.   |
| Chile:  | Chile considered It is very complex to get data to determine specific MRLs for pseudocereals.   |
| Ecuador:  | The criteria to combine pseudocereals with other small grains are (1) similar potential to store pesticide residues in the product, (2) similar morphology, production practices, growth habits, área edible, and similar BPA for pesticide use.  |
| European Union:   | <p>If pseudocereals were grouped with one of the cereal species, considering also the differences between the pseudocereals, it would be extremely difficult, if not impossible, to choose a representative commodity which meets the criteria for the choice of representative commodities.</p> <p>Pseudocereals are a relatively recent product in the international trade, so there is a lack of specific data on these plants. In the actual situation, the EU Guidance Document on Extrapolation allows the extrapolation of trials from wheat + maize, or wheat + sorghum, to the whole group of Cereals (which comprises, in a different subgroup, 'buckwheat and other pseudocereals').</p> |

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|                | <p>Extrapolations are authorized only for seeds and post-harvest treatments.</p> <p>Keeping the pseudocereals in a distinct subgroup will also stimulate data generation. On the contrary, if the species would be mingled with one of the cereal species, the specific research on pseudocereals will be discouraged.</p>   |
| India:         | --   |
| Japan:         | (1) Similar production practices, growth habits, etc and (2) similar GAP for pesticide uses.   |
| Indonesia:     | Cited (1) Identification in family level (Poaceae and not Poaceae) and (2) Seeds of pseudocereals are bigger than small grains.  |
| New Zealand:   | No comments  |
| Peru           | <p>If it is true, so-called small grains belong taxonomically to the family Poaceae, formerly called GRAMINEAE and called PSEUDOCEREAL the AMARANTHACEAE family (formerly separate CHENOPOIDEAE and Maranthaceae), which differ in their morphology. They have the methodology of crop production practices, growth habit, plant health problems, food area and similar potential to store pesticide residues.</p> <p>In reference to the use of the grains it can be noted that cereal grains and pseudocereals can be consumed directly after pearl (quinoa - washed), as flakes and flour.</p>  |
| United States: | <p>Cereal grains are generally defined as a grass grown for its small, edible seed (Chapman and Carter, 1976). Lantican (2001) defined cereal grains as agronomic crops belonging to the grass family, <i>Gramineae</i>, which are utilized as staples. FAO (<a href="http://www.fao.org/economic/the-statistics-division-ess/methodology/methodology-systems/crops-statistics-concepts-definitions-and-classifications/en/">http://www.fao.org/economic/the-statistics-division-ess/methodology/methodology-systems/crops-statistics-concepts-definitions-and-classifications/en/</a>) defines cereals as annual plants, generally of the gramineous family, yielding grains used for food, feed, seed and industrial purposes, e.g., ethanol. FAO excludes legumes, such as pulses, but includes rice, canaryseed (<i>Poaceae (Gramineae)</i>), buckwheat (<i>Polygonaceae</i>) and triticale (<i>Poaceae (Gramineae)</i>). FAO recommended that the denomination of "cereal crops" be limited to crops harvested for dry grain only, excluding, therefore, crops harvested green for forage, silage, grazing, etc.; and, in the case of maize, harvested green, also for food. Pseudocereals or pseduograins, are not grasses, but have similar uses and are generally considered with cereal grains. Pseudocereals, produce dry fruit referred to as seed, nutlets, grains or achenes and are found in families such as <i>Amaranthaceae</i> (amaranth and Inca wheat), <i>Chenopodiaceae</i> (Canihua) and <i>Polygoniaceae</i> (buckwheat). This proposal also includes the small seeded crop chia (<i>Lamiaceae</i>).</p> |

| Are grower practices / use patterns similar for pseudocereals and small grains? |  |
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| Country   | Response   |
| Canada:   | The use pattern is the same for pseudocereals and cereal in the Cereal Grain crop group. |
| Chile:  | No comments.   |


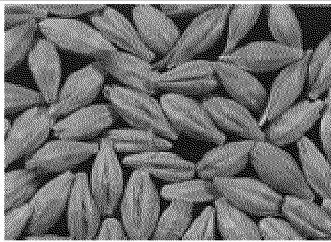

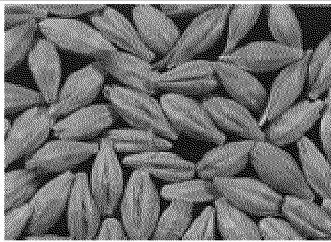

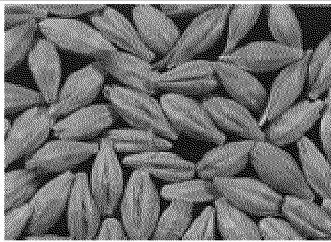
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| Ecuador:        | <p>Pseudocereals and small grains have similar production practices as well as similar harvest and post harvest practices. Regarding use patterns both pseudocereals and small grains are used for human consumption, which can be as whole grain or processed into flour.</p>   |
| European Union: | <p>Pseudocereals are mainly cultivated in developing countries in not intensive or industrial scale. They are often the product of small scale local producers, which follow traditional or very simple cultural practices.</p> <p>In these situations the use of pesticides is much more limited in number and quantity than in the cereals cultivation and the two groups of crops cannot be compared.</p> <p>However, in cultivations of pseudocereals in Europe, there is a need of insecticides applications. This is particularly true for quinoa, for which insects (in particular aphids, cutworms, tortrix – cnephasia – and bugs) are the main problem. Periods and numbers of insecticides applications are in these situations comparable with those of cereals, also in term of growth stage.</p> <p>Another aspect to be considered is the limited <b>yield</b> of the pseudocereals, which never reaches the level of yield of cereals grains, like wheat.</p> <p>A FAO source (<a href="http://www.fao.org/docrep/t0646e/T0646E00.htm#Contents">http://www.fao.org/docrep/t0646e/T0646E00.htm#Contents</a>) reports levels of 0.8-1.5 t/ha for amaranth, 3-4 t/ha for quinoa and 1.5 t/ha for canihua, whereas for wheat the yield is around 8 t/ha in Germany. For buckwheat the Cornell University gives a yield of 1000 - 1500 lb/acre, equivalent to around 1.5 t/ha.</p> <p>One of the criteria of grouping crops in the same subgroup is the similar GAP. If wheat would be used as a representative crop for pseudocereals an extrapolation would be allowed from wheat to pseudocereals, applying the same GAP as for wheat.</p> <p>The first assumption is that a comparable amount of spray solution reaches the soil by run-off and at areas not covered by plants. Taking into account the higher planting density of cereals the soil coverage might be higher than for pseudocereals, meaning that a higher amount of active substance will reach the soil when applied to pseudocereals. On the other hand, run-off from cereals might be higher compared to pseudocereals. Overall, the same amount of spray solution may reach the whole plant.</p> <p>The second assumption is that the remaining spray solution will be distributed between emerging/growing seeds and green parts of the plant in equal amounts. The yield of grains of pseudocereals is smaller which may lead to higher residues compared to cereals when the same amount of active substance is distributed over the grain.</p> |
| India:          | --   |
| Indonesia:      | Yes the growers used the similar patterns, but in Indonesia nobody groups them as pseudocereals and small grains   |
| Japan:          | No. (please see the response to the first question)  |

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| New Zealand:   | No comments  |
| Peru           | <p>Cultural practices are similar to the cultural practices of the other members of the crop group of cereal grains, especially wheat and / or barley. Pseudocereals and small grains have similar production practices and practices like harvesting and post harvest. As both patterns pseudocereals use and small grains are used for human consumption, which can be transformed as whole grain or flour.</p> <p>The main phytosanitary problems that inhibit this high potential value of crops are insects and plant diseases that can be controlled by pesticides proposed extrapolation and registered with the same usage pattern as wheat.</p>   |
| United States: | <p>In the United States buckwheat (a pseudocereal) is included in the cereal grains group. There are some separate tolerances (MRLs) for buckwheat but all of these except for one are based on the extrapolation from wheat data and one from barley data. For the one chemical with a separate buckwheat tolerance, the tolerance (MRL) is based on residue field trial data for buckwheat. However, for this chemical there are no separate wheat data or barley data for comparison. The United States is also in the process of establishing tolerances (MRLs) for quinoa for several chemicals based on recommendations from the EPA's peer review committee, the Health Effects Division Chemistry Science Advisory Committee (HED ChemSAC), that residue field trial data for wheat or barley (if higher residues) can be used to extrapolate expected residues for quinoa without separate field trial data for quinoa. This recommendation was based on the following:</p> <ol style="list-style-type: none"> <li>1. Cultural practices for quinoa are similar to the cultural practices of the other members of the cereal grain crop group, especially wheat and/or barley.</li> <li>2. Quinoa and wheat have comparable growing seasons ranging from 80 - 220 days for quinoa, and 90 - 260 days for wheat, depending upon variety.</li> <li>3. Use patterns, treatment timing, and label rates will be same as those of the registered cereal grains.</li> <li>4. Major pest problems inhibiting this potential high value specialty crop are insects and plant diseases that could be controlled by the proposed pesticides. Other countries such as Peru, Bolivia, and Ecuador would benefit from these translations since they have the same major pest problems as the U.S.</li> <li>5. Harvesting quinoa is similar to other cereal grains such as wheat.</li> <li>6. Growers in the regions in U.S. and Canada will be benefited by these translations.</li> <li>7. Wheat and barley are recommended representative commodities for translations and not grain sorghum, since quinoa is a cool season crop and field trial regions are better for wheat and barley.</li> <li>8. There are no forage or hay tolerances needed for quinoa at this time.</li> <li>9. Quinoa has major value to health by being gluten free and high in protein and approving the translations will help quinoa growers control the pest problems that impede production.</li> </ol> <p>Therefore, in the United States the pesticide use patterns are similar for the pseudocereals and the small grains since the majority of the labeled products</p> |

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|  | for the pseudocereals are based on wheat data and listed on the registered label with the same use pattern as wheat. |
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| What was the rationale for separating or combining wheat and barley? |  |
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| Country  | Response   |
| Canada:  | Canada considers it important to have residue data for both wheat and barley to support crops in the cereals crop group. Canada support Proposal A, but recommends that both wheat and barley be representative crops for the Small grains crop group. Wheat or barley may have higher residues, depending on the pesticide and use pattern.   |
| Chile:   | No comments.   |
| Ecuador:   | The ratio to combine wheat with barley, is considered according to its consumption way, since in both cases the seed is consumed at a mature stage, and after a cooking process.   |
| European Union:  | <p>EU experiences in the pesticide residue assessment show that the residue behaviour of barley and wheat is different. This is particularly evident for late pesticides applications.</p> <p>The different residue behaviour is due to the different morphology of the wheat grain compared to the barley grain. This needs a short agro-industry explanation.</p> <p>In <u>grasses</u> (which includes also <u>cereals</u> such as <u>rice</u>, <u>barley</u>, <u>oats</u> and <u>wheat</u>), the ripe seed is called grain and it is surrounded by thin, dry, scaly <u>bracts</u> (or glumes), forming a dry <u>husk</u> (or hull) around the grain. Once it is removed, this husk is referred in agro-industry as <i>chaff</i>. Before the grain can be used, this chaff needs to be removed.</p> <p>The process of loosening the chaff from the grain, so as to remove it, is called <i>threshing</i>, traditionally done by milling or pounding. Domesticated wheat varieties, such as durum wheat and common wheat, have been selected to have easily removable chaff (these varieties are known as free-threshing or naked) at the same moment of the harvesting.</p> <p>Thus, when wheat (and also rye) grain are harvested, the chaff is removed together with a substantial amount of pesticide residues, in particular non-systemic pesticides. This does not happen in barley, since the husks enclose the grain very tightly and firmly and are not removed during the simple harvesting-threshing. For barley and oats the husks are removed at a later stage, during the real milling process.</p> <p>As a consequence, when analyzing the whole grain, the husk (or chaff), which is the part of the seed which bear the higher part of residues, is <b>absent</b> in wheat grains, while is still <b>present</b> in barley grains.</p> |
| India:   | --   |
| Indonesia:   | Both is for daily consumption and also belongs to the grass family. Both producing flour, but barley has more fibers than wheat.   |
| Japan:   | As already documented in <u>CRD 8</u> and <u>CRD17</u> at the 47 <sup>th</sup> Session of the CCPR, Japan supports the second option (proposal B) to classify wheat and barley in the different subgroups for the following reasons:   |

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|  | <p>For wheat, only kernels without husks are distributed and traded while for barley, kernels with husks are mainly distributed and traded. This difference has significant impact on residue levels of the two commodities; and</p> <p>ii. Analysis of existing Codex MRLs and supporting supervised residue trials data for wheat and barley suggest that residue levels in barley grains would be higher than those found in wheat grains when pesticides are applied following the same or similar GAP.</p> <p>The detailed reason and supporting data and information are as follows:</p> <p><b><u>(i) Whether or not the kernels in trade are covered with husks</u></b></p> <p>Whether or not kernels are covered with husks when traded needs to be considered in the subgrouping of Group 020 Cereal grains because it has significant impact on residue concentrations of the commodities when analyzed.</p> <p>For wheat, as its kernels and husks separate readily with the mechanical stress of threshing process, only kernels without husks are distributed and traded. On the other hand, for barley, as its husks cover the kernels so tightly that they remain attached to the kernels even after threshing and it is not so easy to remove them, kernels with husks are mainly distributed and traded (Fig .1). This difference has significant impact on residue levels of two commodities.</p> <table><tr><td><div>GC 0649 Wheat</div></td><td><div>GC 0640 Barley</div></td></tr></table> <p>Fig. 1 Typical barley grains and wheat grains</p> <p><b><u>(ii) Analysis of Codex MRLs and supporting supervised residue trials data for Wheat grain and Barley grain</u></b></p> <p>Japan would like to provide the results of preliminary analysis of existing Codex MRLs for wheat and barley, which suggest that residue levels in barley grains would be higher than those found in wheat grains when pesticides are applied following the same or similar GAP.</p> <p>According to the current Codex MRLs database, while Codex MRLs for GC 0080 Cereal grains are established for 33 pesticides, Codex MRLs for GC 0640 Barley and those for GC 0654 Wheat are separately established for 41 pesticides (excluding post-harvest applications). For most of these pesticides, the Codex MRL for barley grains is higher than that for wheat grains as shown in Table 1 (see page 5 of this paper).</p> <p>For 16 out of the above 41 pesticides, Codex MRLs for barley and wheat as well as corresponding GAPs and data on supervised residue trials are listed in</p> | <div>GC 0649 Wheat</div>  | <div>GC 0640 Barley</div>  |
| <div>GC 0649 Wheat</div>  | <div>GC 0640 Barley</div>    |  |   |

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|                | <p>Table 2 (see pages 6-12) of this paper). These pesticides were selected because supervised residue trials are conducted following the same or similar GAP for barley and wheat.</p> <p>The ratios of median residue in barley to that in wheat for Propiconazole, Isopyrazam, Cyhalothrin (includes lambda-cyhalothrin), Metrafenone, Fenbuconazole, Prothioconazole, Penthiopyrad, Tebuconazole, Azoxystrobin, Sulfoxaflor, MCPA, Fluxapyroxad, Cyprodinil, Dicamba, Methomyl, and Trinexapac-ethyl are, &gt;1.1, &gt;2.2, &gt;2, 6, &gt;1.5, &gt;1.8, &gt;5.7, &gt;17, 8, 3.5, 1, 6.5, 8.3, 7, 6, and 0.88, respectively. The ratios of maximum residue in barley to that in wheat for the same set of pesticides are, &gt;5.5, 2.1, 11, 10, 2.3, 1.8, 3.2, 12, 2, 2.9, 0.75, 5.8, 6.3, 4.5, 1.2, and 0.36, respectively. These figures suggest that residue concentrations in barley grains would be higher than those found in wheat grains when pesticides are applied following the same or similar GAP. For Isopyrazam and Penthiopyrad, although they were used on barley at the earlier growth stage (BBCH 61: before beginning of flowering) than that on wheat (BBCH 71 : before grain watery ripe stage), residues concentrations in barley grains were higher than those found in wheat grains.</p> <p>It could be concluded that at least for many pesticides, residue levels in barley are expected to be higher than those in wheat when pesticides are applied for both of the crops according to the same GAP. For this reason, when establishing group MRLs that covers both wheat and barley, it would be necessary to conduct supervised residue trials for not only wheat but also barley in order to avoid underestimating the potential residue levels of barley.</p> <p>Based on the above data and information, Japan considers it necessary to separate the subgroup for wheat from that for barley in order to provide flexibility in establishing MRLs for subgroups.</p> |
| New Zealand:   | <p>While there are potential differences in GAP between the wheats and barleys (particularly for fungicides that are applied according to infection pressure and crop growth stage) and although there seems to be a trend for lower residues to remain in wheat grains than in barley grains (See CCPR 47 CRD-17), New Zealand would support a single subgrouping for all small grain cereals.</p>   |
| Peru           | <p>We support the proposal that only wheat should remain the representative of small grain product. This is considered due to their consumption way, since in both cases the seed is consumed to a mature stage, and after a firing process. Also agronomically they handled similarly and the same pesticides are almost always used to control pests.</p>   |
| United States: | <p>In the United States label uses for the small grains including wheat and barley have the same use pattern (GAP), list the same pests to be controlled, and often result in similar or the same residue levels. The United States had proposed that only wheat should remain the representative commodity for small grains. Reasons for this include: 1) the large amount of harvested acres for wheat over barley (as reported above in 2012, 48 million acres of wheat versus 2 million acres of barley were grown in the United States); 2) the larger number of field trials currently required for wheat (20) over barley (12); 3) a much wider geographical and field trial distribution for wheat; 4) differences in processed food and feed commodities with wheat having more items; 5) different animal feeds would not reflect the extensive ones presently represented in the United States; 6) there are massive differences in</p>  |

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|  | consumption of wheat over barley; large amount of USDA PDP data (Pesticide Data Program, <a href="http://www.ams.usda.gov/datasets/pdp">http://www.ams.usda.gov/datasets/pdp</a> ) showing more detects in wheat than barley; and additional costly regulatory requirements on registrants and EPA review time by scientists if barley was added as a representative commodity. However, the United States does recognize there are times when the residues resulting on barley may be higher so there is value in requiring data on both of these crops to determine residues. However, there is no reason to separate these out into separate groups. Separating wheat and barley into separate subgroups essentially only results in extrapolations from wheat to rye and barley to oats without the creation of a valid subgroup |
|--|--|

| What criteria were used to separate or combine wheat and barley? |   |
|--|---|
| Country  | Response  |
| Canada:  | Canada considers it important to have residue data for both wheat and barley to support crops in the cereals crop group. Canada support Proposal A, but recommends that both wheat and barley be representative crops for the Small grains crop group. Wheat or barley may have higher residues, depending on the pesticide and use pattern.  |
| Chile:   | No comments.  |
| Ecuador:   | The criteria to combine wheat with barley are: similar potential to store pesticide residues in the product, similar morphology, production practices, growth habits, área edible, and similar BPA for pesticide use.   |
| European Union:  | The morphological diversity explained above is the basic rationale on which the EU bases the separation of barley from wheat. And (2) In addition, there are also different cultivation practises. In Northern countries for example, wheat is often sown in the fall whilst barley is sown in the spring. This means that the growing season for wheat is longer than for barley. This also has an effect on the final residue levels.   |
| India:   | --  |
| Indonesia:   | To separate wheat from barley: Wheat belong to the genus <i>Triticum</i> , in the grass family and considered as cereal grain. The most usage of wheat as a staple food, flour, bread, spaghetti, pastry, biscuits, noodles, pancakes, livestock feed, alcohol, crackers and cake. Barley belongs to the genus <i>Hordeum</i> in the grass family and also considered as cereal grain. Barley is used for making bread, cereal, animal fodder, beers, cereals, beverage, soups, stews, bread an algicide etc. |
| Japan:   | Commodity's similar potential for pesticide residues  |
| New Zealand:   | --  |
| Peru   | The only criteria would be for its use; wheat gluten and is used for bread and pasta noodles and barley-malt-beer for food and feed and their morphology: Number of florets / spikelet and the shape of the atrium and ligula on leaves; however they are similar in the way of storing pesticide residues in the product, production practices, growth habit, similar edible area and good agricultural practices for pesticide use  |

|                |   |
|----------------|---|
| United States: | <p>(1) commodity's similar potential for pesticide residue; (2) similar commodity morphology; (3) similar production practices, growth habits, etc.; (4) similar edible portion; (5) similar GAP for pesticide uses; and (6) similar residue behavior</p> <p>Cereal grains follow similar growth and development patterns. Cereal grains follow several stages, including germination, early seedling growth, tillering and vegetative growth, elongation and heading, flowering and kernel development. These developmental stages have been described by numerical scales for quantifying the growth stages of small grains. Commonly used scales include Zadoks, Feekes and Haun growth scales. Small grains have either a spring or a winter growth habit. Plants with a winter habit require a period of chilling or vernalization to induce the formation of reproductive structures. Vernalization is not required for plants with a spring habit. Seedbed preparation is important especially for fields with large amounts of residue from the previous crop. Minimum-till and no-till can be beneficial because crop residue on the soil surface helps retain moisture. Small grains on well-drained soils can be successfully sown flat and most sowings are drilled rather than broadcasted. Grains can be grown on many types of soils and adequate nitrogen, phosphorus, sulfur and potassium are important for plant growth. Grains are harvested when the moisture content is at a certain percentage. This is important not only for full development of the grain but also to determine if the grain is dry enough for storage.</p> |
|----------------|---|

| Provide residue data for wheat and barley with similar use patterns |  |
|---|--|
| Country   | Response   |
| Canada:   | <p>In Canada, there are 7 pesticides with higher MRLs for barley than for wheat. In comparison, there are only 3 pesticides that have higher MRLs for wheat than for barley. MRLs in barley were up to ~17x higher than the MRLs for wheat for chemicals with the same registered use pattern.</p> <p>In the US, there are 8 pesticides with tolerances on barley that are higher than wheat (up to 70x higher with the same or similar use patterns) and 4 pesticides with tolerances on wheat that are higher than for barley.</p> <p>In the EU there are 41 pesticides with higher MRLs for barley than wheat (up to 200x higher) and only 9 pesticides with higher MRLs for wheat than barley.</p> |
| Chile:  | No comments.   |
| Ecuador:  | Ecuador has no pesticide residue data in these crops.  |
| European Union:   | <p>Depending on the fact whether the grain analysed is still attached (barley) or not (wheat) to the husk, the expected consequence is the existence of serious differences in the MRLs for the two species and in particular we expect higher MRLs in barley than in wheat.</p> <p>Some investigations have been recently performed on European data, which support this hypothesis.</p> <p>6.1) In the first study, the MRLs of 104 pesticides authorized in EU for cereals have been compared. In this case, GAPs have not been taken into consideration and only the raw levels have been compared.</p>  |

|   |   |   |       |        |       |
|---|---|---|-------|--------|-------|
|   |   | A large majority of MRLs (70,19%) are identical for the two species, but in a roughly 28 % of the substances (almost 1/3) the barley MRL is higher than the wheat one. Only in 1.92 % of the cases the barley MRL is lower than the wheat one.  |       |        |       |
|   |   | 6.2) As said, the above study does not consider the differences in GAPs and therefore conclusions on residue behaviour cannot be drawn. Therefore, in the second study a smaller group of 16 pesticides with similar GAPs have been considered: |       |        |       |
|   |   | mrl calculated on available set of trials for the crop in an individual zone  |       |        |       |
|   |   | barley  | wheat | barley | wheat |
|   |   | NEU   | NEU   | SEU    | SEU   |
|   |   |   |       |        |       |
| Azoxystrobin  | F   | 0,7   | 0,04  | 0,5    | 0,5   |
| Boscalid (F) (R)  | F   | 4   | 0,6   | **     | **    |
| Carbendazim and benomyl (sum of benomyl and carbendazim expressed as carbendazim) (R) | F   | 0,4   | 0,02  | 2      | 0,06  |
| Chlorothalonil (R)  | F   | 0,3   | 0,1   | 0,4    | 0,01  |
| Cyprodinil (F) (R)  | F   | 3   | 0,5   | 4      | 0,5   |
| Fenpropidin (sum of fenpropidin and its salts, expressed as fenpropidin) (R) (S)      | F   | 0,3   | 0,1   | 0,6    | 0,1   |
| Fluroxypyr (fluroxypyr including its esters expressed as fluroxypyr) (R)              | F   | 10  | 0,1   | 5      | 0,05  |
| Flutriafol  | F   | 0,15  | 0,15  | **     | **    |
| Metconazole (sum of isomers) (F)  | F   | 0,2   | 0,05  | 0,4    | 0,06  |
| Picoxystrobin (F)   | F   | 0,2   | 0,05  | 0,3    | 0,01  |
| Prothioconazole (Prothioconazole-desthio) (R)   | F   | **  | **    | 0,04   | 0,02  |
| Pyraclostrobin (F)  | F   | 0,3   | 0,1   | 0,2    | 0,02  |
| Tebuconazole (R)  | F   | 0,3   | 0,1   | 2      | 0,1   |
| Thiacloprid (F)   | I   | 0,9   | 0,02  | 0,8    | 0,06  |
| Thiophanate-methyl (R)  | F   | 0,3   | 0,01  | 0,3    | 0,03  |
| Trifloxystrobin (F) ®   | F   | 0,1   | 0,3   | 0,4    | 0,05  |
|   |   |   |       |        |       |
| *   | All trials selected were conducted in compliance with the intended GAP, i.e. 25 % deviation in one of the key parameters was commonly accepted. |   |       |        |       |
| **  | GAP for barley and wheat not comparable, or no GAP for barley or wheat  |   |       |        |       |
|   |   |   |       |        |       |
|   |   | F=fungicide, I=insecticide, H=herbicide   |       |        |       |

|  |           |
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| It is clear that in the situation of only similar GAPs, an even larger majority of barley MRLs are higher than wheat MRLs (81.25%):  |           |
| Barley MRL = Wheat MRL   | 2 12,5%   |
| Barley MRL > Wheat MRL   | 13 81,25% |
| Barley MRL < Wheat MRL   | 1 6,25%   |
| Total PPP compared   | 16 99,99% |
| 6.3) In addition to the three European studies reported above, we investigated also data and conclusions from recent JMPR evaluations on six specific pesticides, used in barley and wheat, and with identical GAPs ( <u>see Annex attached at the end of this document</u> ).                           |           |
| From those examples it can be concluded that in situation of identical GAPs, the residue levels in wheat are always lower than in barley, when the pesticide is used after growth stage 59. If the pesticide is used before growth stage 50, the residue levels in wheat and barley might be comparable. |           |
| The differences can be easily explained comparing the results against the criteria for crop grouping (see Codex CL 2014/16-PR):  |           |

|  | Criteria for crop grouping                                |                                |
|--|---|--------------------------------|
|  | Commodity has a similar potential for pesticide residues  | comparable                     |
|  | Similar morphology  | no (depending on growth stage) |
|  | Similar production practices, growth habits, etc.         | yes                            |
|  | Edible portion  | the same                       |
|  | Similar GAP for pesticide uses                            | the same                       |
|  | Similar residue behaviour                                 | depending on growth stage      |
|  | To provide flexibility for setting (sub) group tolerances | desirable                      |
| <p>As expected, the crucial factor is the morphology of the grain, which is responsible for the different residue levels beyond growth stage 50.</p> <p>All the reported studies confirm the EU opinion that wheat and barley are not comparable and the two species must be kept in separate subgroups.</p> |   |                                |

|                |  |
|----------------|--|
| India:         | --   |
| Indonesia:     | No information from Indonesia  |
| Japan:         | See attached Table 1 and Table 2.  |
| New Zealand:   | --   |
| Peru           | In Peru, the cultivation of wheat and barley almost entirely done without pesticides   |
| United States: | <p><u>Response:</u> The United States has provided summaries for some chemicals where data are available. Additional information on other chemicals can be provided at a later date. Summaries of the data are being provided from reviews completed by the US EPA where the use patterns are similar for barley or wheat. If the actual data are needed the chemical company that owns these data would need to agree with this.</p> <p>Tralkoxydim – Tolerance (MRL): Barley, grain 0.02 ppm and Wheat, grain 0.2 ppm</p> <p>Barley - a single postemergence broadcast application of tralkoxydim (40 or 80% DF) at 0.025 lb ai/A (~1x the maximum label rate), residues of tralkoxydim were &lt;0.02 ppm in/on barley hay cut 26-43 days posttreatment and barley grain and straw harvested at normal maturity, 49-90 day posttreatment. Based upon these data, tolerances of 0.02 ppm for residues of tralkoxydim in/on barley hay, grain, and straw where established.</p> <p>Wheat – a single postemergence broadcast application of tralkoxydim (40 or 80% DF) at 0.025 lb ai/A (1x), residues of tralkoxydim ranged from &lt;0.02- 0.03 ppm in/on wheat forage at 28 day posttreatment and &lt;0.02 ppm in grain and straw at 60 day posttreatment. Residues in hay were &lt;0.02 ppm in 42 treated samples at 19- 81 days posttreatment interval, and were at 0.13 ppm (22 day posttreatment) and 0.08 ppm (28 day posttreatment) in the decline study. Based upon these data, tolerances of 0.02 ppm for residues of tralkoxydim in/on wheat grain, straw, and hay, and at 0.05 ppm in wheat forage where established.</p> <p>Trinexapac-ethyl – Tolerance (MRL): Barley, grain 2.0 ppm and Wheat, grain 4.0 ppm</p> <p>Barley - applied to barley as a foliar spray application at a target rate of 0.115 lb ai/A (~1x the proposed maximum seasonal rate of 0.11 lb ai/A). Single control and duplicate treated samples of barley hay were harvested from each plot 30 days PHI and barley straw and grain samples were harvested at 45 days PHI. Following a foliar spray application of trinexapac-ethyl at a total rate of 0.113-0.120 lb ai/A, CGA179500 residues were &lt;0.01-0.54 ppm in/on barley hay, &lt;0.01-0.29 ppm in/on barley straw, and &lt;0.01-1.3 ppm in/on barley grain at PHIs of 30 (hay) or 45 days (straw and grain). Based upon these data, tolerances of 0.8, 0.4, and 2.0 ppm in/on barley hay, straw, and grain, respectively where established.</p> <p>Wheat - applied to wheat as a foliar spray application at a target rate of 0.115 lb ai/A (~1x the proposed maximum seasonal rate of 0.11 lb ai/A). Single</p> |

|  |  |
|--|--|
|  | <p>control and duplicate treated samples of wheat forage and hay were harvested from each plot 30 days PHI and wheat straw and grain were harvested at 45 days PHI. Following a foliar spray application of trinexapac-ethyl at a total rate of 0.113-0.120 lb ai/A, CGA179500 residues were &lt;0.01-0.98 ppm in/on wheat forage, &lt;0.01-1.3 ppm in/on wheat hay, &lt;0.01-0.64 ppm in/on wheat straw, and 0.07-4.0 ppm in/on wheat grain at PHIs of 30 (forage and hay) or 45 days (straw and grain). Based upon these data, tolerances of 1.5, 1.5, 0.9, and 4.0 ppm in/on wheat forage, hay, straw, and grain, respectively were established.</p> <p><b>Pyrasulfotole - Tolerance (MRL):</b> Barley, grain 0.02 ppm and Wheat, grain 0.02 ppm.</p> <p><b>Barley</b> - a maximum seasonal application rate of 0.048 lb ai/A (~1x the maximum proposed application rate; 0.054 kg ai/ha) for SE06 or 0.037 lbs ai/A (1x the maximum proposed application rate; 0.041 kg ai/ha) for EC23 on barley grain, hay, and straw (PHI of 21 to 25 days for hay, 35 to 45 days for straw and grain). With these use patterns, total pyrasulfotole and pyrasulfotole-desmethyl residue levels are not expected to exceed 0.208 ppm (hay), 0.011 ppm (grain) and 0.251 ppm (straw). Using the NAFTA MRL/Tolerance Harmonization Workgroup methodology for hay and straw and rounding up from the HAFT value for grain, the available barley crop field trial data indicate that the appropriate tolerances for residues of pyrasulfotole and pyrasulfotole-desmethyl in/on barley commodities are 0.30 ppm for barley, hay; 0.02 ppm for barley, grain; and 0.20 ppm for barley, straw.</p> <p><b>Wheat</b> - a maximum seasonal application rate of 0.049 pound (lb) ai/acre (A) (~1x the maximum proposed application rate; 0.055 kg ai/ha) for SE06 or 0.038 lbs ai/A (~1x the maximum proposed application rate; 0.042 kg ai/ha) for EC23 on wheat forage, grain, hay, straw (PHI of 18 to 25 days for forage, 21 to 25 days for hay, 40 to 56 days for straw and grain). With these use patterns, total residues of pyrasulfotole and pyrasulfotole-desmethyl are not expected to exceed 0.212 ppm (forage, 25-day PHI), 0.900 ppm (hay), 0.013 ppm (grain), and 0.158 ppm (straw). Using the North American Free Trade Agreement (NAFTA) Maximum Residue Limit (MRL)/Tolerance Harmonization Workgroup methodology for hay and straw and rounding up from the highest-average field trial value (HAFT) values for forage and grain, the available wheat crop field trial data indicate that the appropriate tolerances for residues of pyrasulfotole and pyrasulfotole-desmethyl in/on wheat commodities are 0.20 ppm for wheat, forage; 0.80 ppm for wheat, hay; 0.02 ppm for wheat, grain; and 0.20 ppm for wheat, straw.</p> <p><b>Florasulam - Tolerance (MRL):</b> Barley, grain 0.01 ppm and Wheat, grain 0.01 ppm</p> |
|--|--|

| Summary of Directions for Use of Florasulam. |             |                          |                             |  |             |                                |
|--|-------------|--------------------------|-----------------------------|--|-------------|--------------------------------|
| Applic. Timing, Type [Equipment].            | Formulation | Applic. Rate (lb a.i./A) | Max. No. Applic. per Season | Max. Seasonal Applic. Rate (lb a.i./A) | PHI (days)* | Use Directions and Limitations |

| Wheat, Barley, Oats, Rye, Triticale   |          |        |   |        |    |   |
|---|----------|--------|---|--------|----|---|
| Broadcast foliar (from 3-leaf stage up to flag leaf emergence Zadoks scale 39) [Ground or aerial] | 0.25% EC | 0.0044 | 1 | 0.0044 | 60 | Livestock may be grazed on treated crops 7 days following application. Application through any type of irrigation equipment is prohibited.                                |
| Broadcast foliar (from 3-leaf stage up to joint stage Zadoks scale 31) [Ground or aerial]         | 0.39% EC | 0.0044 | 1 | 0.0044 | 60 | Livestock may be grazed on treated crops 7 days following application. Application through any type of irrigation equipment is prohibited. Do not apply after boot stage. |
| Broadcast foliar (from 3-leaf stage up to joint stage Zadoks scale 31) [Ground or aerial]         | 0.58% EC | 0.0045 | 1 | 0.0045 | 60 | Livestock may be grazed on treated crops 7 days following application. Application through any type of irrigation equipment is prohibited. Do not apply after boot stage. |
| Broadcast foliar (from 3-leaf stage up to flag leaf emergence Zadoks scale 39) [Ground or aerial] | 4.84% EC | 0.0045 | 1 | 0.0045 | 60 | Livestock may be grazed on treated crops 7 days following application. Application through any type of irrigation equipment is prohibited.                                |

The supervised field trials indicated that residues of florasulam in grain of wheat and barley were not quantifiable (<0.01 ppm) following a single foliar application at an exaggerated rate (2 X the proposed maximum seasonal application rate). In addition, the metabolism studies in wheat treated with <sup>14</sup>C-DE-570 at the exaggerated rate of 50 g a.i./ha (10X the proposed maximum season rate) indicated very low radioactive residue levels (maximum of 0.002 ppm).

Residues of florasulam were below the LOQ for grain (0.01 ppm) and forage, hay, and straw (0.05 ppm).

Based upon these data, tolerances for Barley, grain at 0.01 ppm and Wheat, grain at 0.01 ppm were established.



Please describe a compromise solution that would allow CCPR to decide on subgroups for Cereal Grains in terms of generation of additional residue data and risk assessment

| Country         | Response   |
|-----------------|--|
| Canada:         | <p>Under Proposal A, separate out the small cereals subgroup 20A into 2 subgroups; one with wheat as the representative crop and the other with barley as the representative crop .</p> <p>Under Proposal B, combine the pseudocereals subgroup 20E with the small grains subgroup 20A</p> <p>Final subgroups:</p> <p>Group 20A, <b>Wheat</b>. Would include pseudocereals.</p> <p>Group 20B, <b>Barley</b></p> <p>Group 20C, <b>Rice</b></p> <p>Group 20D, Maize, grain sorghum and millet (<b>Maize and sorghum or millet</b> as rep crops)</p> <p>Group 20E, <b>Sweet Corn</b></p> <p><b>Highlighted crops</b> indicate the proposed representative crop(s) for the subgroups.</p> <p>Rationale: pseudocereals would be included in the wheat subgroup as it is expected that residues in wheat as the representative crop would cover potential residues in the pseudocereals. In addition, this would reduce the regulatory burden with respect to the number of crops for which data would be required to support the cereals group.</p> <p>The suggested crop subgroups are necessary given the different crop morphologies and cultivation practices of cereals and were chosen to ensure that the representative crop would be expected to have the highest residues</p> <p>General Comment:</p> <p>In comparing Proposal A and B it was noted that Canarygrass, Annual; Hungry rice; Job's tears; and Teff were contained in Group 20A small grains in Proposal A but in Subgroup 20D Maize, Millet, Sorghum in Proposal B even though Proposal A includes the Subgroup 20B Maize, Grain Sorghum and Millet. For consistency these crops should be included in the same subgroup for both proposals.</p> |
| Chile:          | No comments.   |
| Ecuador:        | The completion of the pesticide residues analysis in samples taken from different products of the subgroups within Option A.   |
| European Union: | <p>We would like to underline that this choice is already a step towards a compromise solution, as the EU cereals classification at the moment comprises 9 subgroups (and sweet corn in another category). Accepting the proposal B, the EU already accepts that four of its subgroups (common millet, oat, rye, sorghum) will disappear.</p> <p>There are two major points on which the EU disagrees: (1) Merging wheat with barley and (2) Merging pseudocereals with either wheat or barley.</p>  |

|                |  |
|----------------|--|
| India:         | --   |
| Indonesia:     | No comment   |
| Japan:         | As mentioned above, Japan suggests that the subgroup for pseudocereals should be separated from the subgroup of barley and wheat due to the difference in botanical characteristics, growth habit and GAPs. However, in view of the fact that pseudocereals are very minor worldwide, extrapolation of residue data from the commodities in other subgroups to pseudocereals could be considered if the sufficient data and information to do so are provided by members of the EWG.   |
| New Zealand:   | <p>While we support the single 'Small Grains' sub-group in proposal A, we would suggest that both wheat and barley be listed as the representative commodities.</p> <p>This would support the consideration of sub-group MRLs when the GAPs for wheat and barley are different (which can often be the case for foliar-applied fungicides).</p> <p>Where residues in these two representative crops are not significantly different, the data could be combined to support a single sub-group MRL for Small Grain cereals.</p> <p>However, where residues in wheat and barley are significantly different (e.g. barley residues are significantly higher than wheat residues), one MRL could be considered for Small Grains except barley, oats and cram-cram (based on the wheat data) and higher MRLs could be considered for barley and by extrapolation, for oats and cram-cram (based on the barley data).</p>  |
| Peru           | No comments.   |
| United States: | <p>The United States currently has a cereal grains group that has been in existence since 1995. The representative commodities for this group are corn (fresh sweet corn and dried field corn), rice, sorghum, and wheat. This cereal grains group currently crop contains Barley (<i>Hordeum</i> spp.), Buckwheat (<i>Fagopyrum esculentum</i>), Corn (<i>Zea mays</i>), Millet, pearl (<i>Pennisetum glaucum</i>), Millet, proso (<i>Panicum milliaceum</i>), Oats (<i>Avena</i> spp.), Popcorn (<i>Zea mays</i> var. <i>everta</i>), Rice (<i>Oryza sativa</i>), Rye (<i>Secale cereale</i>), Sorghum (milo) (<i>Sorghum</i> spp.), Teosinte (<i>Euchlaena mexicana</i>), Triticale (<i>Triticum-Secale</i> hybrids), Wheat (<i>Triticum</i> spp.), Wild rice (<i>Zizania aquatica</i>).</p> <p>During the 2015 CCPR, the Committee was asked to consider two options for cereal grains:</p> <p>Proposals for Group 020 Cereal Grains:</p> <p>The first option (Proposal A, Appendix II), which is based on the work of the International Crop Grouping Committee includes 3 subgroups as follows:</p> <p>20A Small grains</p> <p>20B Corn, grain sorghum and millet</p> <p>20C Rice</p> <p>This option combines small grains and pseudocereals into one subgroups because of the difficulty of separating small grains into different subgroups (wheat and barley). It is also difficult to identify an appropriate representative commodity for pseudocereals because of country and regional differences and lack of production data. Option A is the International Crop Grouping Consulting</p> |

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|  | <p>Committee (ICGCC) proposal for NAFTA crop groups.</p> <p>The second option (Proposal B, Appendix III) includes 6 subgroups as follows:<br/> 20A Wheat<br/> 20B Barley<br/> 20C Rice<br/> 20D Maize, millet, sorghum<br/> 20E Pseudocereals grains<br/> 20F Sweet corn</p> <p>Now the EWG is being asked to consider Two options:</p> <p>Proposal A, based on the work of the International Crop Grouping Committee includes 4 subgroups: 20A. Small Grains<br/> 20B Corn, grain sorghum and millet<br/> 20C Rice<br/> 20D Sweet corn</p> <p>Proposal B includes 6 subgroups:<br/> 20A. Wheat<br/> 20B. Barley<br/> 20C Rice<br/> 20D. Maize, millet and sorghum<br/> 20E Pseudocereals<br/> 20F Sweet Corn</p> <p>During the 2015 CCPR the United States agreed that a separate subgroup for sweet corn was feasible. The United States can also agree to barley and wheat as representative crops for the small grains subgroup. However, the United States does not agree with having three subgroups for wheat, barley and the pseudocereals and especially does not agree that separate residue field trial data are needed for the pseudocereals. The representative commodities of wheat and barley will adequately cover residues in both small grains and psuedocereals.</p> <p>If data on barley are also required than the representative commodities will be corn (fresh sweet corn and dried field corn), rice, sorghum, barley and wheat. Part of this crop grouping effort was for national authorities to consider harmonizing their crops groups with the Codex groups to help facilitate trade. The United States is willing to compromise from its existing group where data on barley would also be required and therefore, six representative crops would be needed if the United States agrees to adopt the Codex Cereal Crop Group. This would mean data would need to be collected for wheat, barley, field corn, sweet corn, rice, sorghum or millet.</p> <p>In the United States approximately 95 millions of acres of corn were harvested in 2012, 48 million acres of wheat, 7.1 million acres of sorghum, 2.7 million acres of rice, and 2.2 million acres of barley. In contrast only approximately 33,600 acres of buckwheat and 939 acres of amaranth were grown. These are the only two crops in the proposed pseudocereals subgroup with any reported acres grown in the United States in 2012.</p> <p>Representative commodities in the general principles are supposed to be major in terms of production and/or consumption. There is no pseudocereal</p> |
|--|--|

|  |  |
|--|--|
|  | <p>that meets that criteria. Further, buckwheat is currently a member of the U.S. cereal grain group and there are no reports of over tolerance residues to suggest that additional residue field trial data for buckwheat are needed or that having the other cereal grain crops as the representative for buckwheat has resulted in an unsafe food supply or an under estimation of risk.</p> <p>The United States does not believe requiring additional residue field trial data for the pseudocereals are necessary and that having these additional data will be informative. Additionally, there does not appear to be a clear representative commodity for the proposed pseudocereals subgroup since none of the crops proposed for inclusion in this subgroup are produced on a large scale, production data do not exist for most of these crops. Requiring a separate subgroup for the pseudocereals will likely result in fewer to perhaps the complete absence of tools for growers of these very minor crops since it is not likely data will be generated to support this subgroup. Finally the United States does not believe that having the additional field trial data will make the world's food supply safer</p> |
|--|--|

### **Proposed Potential Compromise (Canadian Compromise):**

Subgroup 20A. Wheat (would include pseudocereals) (wheat as rep commodity)

Subgroup 20B. Barley (barley as representative commodity)

Subgroup 20C. Rice (rice as representative commodity)

Subgroup 20D. Maize, Grain Sorghum and Millet (Maize and sorghum or millet as rep)

Subgroup 20E. Sweet Corn (sweet corn as representative commodity)

This compromise would:

- (1) Adds a sweet corn subgroup to Proposal A,
- (2) Creates two subgroups (wheat and barley) instead of the Small grains subgroup in Proposal A and
- (3) Adds pseudocereals to the Wheat subgroup in Proposal B.

### TYPE 3 GRASSES

Grasses are herbaceous annual and perennial monocotyledonous plants of different kinds, cultivated extensively for their ears (heads) of starchy seeds used directly for the production of food. Grasses used for animal feed are classified under Class C: Primary Animal feed commodities, Group 051.

The plants are fully exposed to pesticides applied during the growing season.

#### Cereal grains

##### Class A

#### Type 3 Grasses Group 020 Group Letter Code GC

Group 020. Cereal grains are derived from the ears (heads) of starchy seeds produced by a variety of plants, primarily of the grass family (Gramineae).

Buckwheat, a dicotyledonous crop belonging to the botanical family Polygonaceae and two Chenopodium species, belonging to the botanical family Chenopodiaceae are included in this group, because of similarities in size and type of the seed, residue pattern and the use of the commodity.

The edible seeds are protected to varying degrees from pesticides applied during the growing season by husks. Husks are removed before processing and/or consumption.

Cereal grains are often exposed to post-harvest treatment with pesticides.

Portion of the commodity to which the MRL applies (and which is analysed): **Whole commodity. Fresh corn and sweet corn: kernels plus cob without husk. (For the latter see Group 012 Fruiting vegetables, other than Cucurbits).**

[Japan proposed, EU disagreed]:

**"Whole commodity in trade. Wheat, rye, triticale, maize, sorghum, pearl millet and other similar cereals with husks readily separable from kernels during threshing: kernels. Barley, oats, rice and other similar cereals with husks that remain attached to kernels even after threshing: kernels with husks (Note: For rice, only about 10% of traded grains is with husk). Fresh corn and sweet corn: kernels plus cob without husk. (For the latter see Group 012 Fruiting vegetables, other than Cucurbits).**

[Note that there are also hullless varieties of barley]

For Fodders and straw of cereals, see Class C, Type 11 Group 051

#### Group 020 Cereal grains

| <u>Code No.</u> | <u>Commodity</u> |
|-----------------|------------------|
|-----------------|------------------|

|         |               |
|---------|---------------|
| GC 0080 | Cereal grains |
|---------|---------------|

Seeds of *gramineous* plants as listed below, and pseudocereals as listed

|         |                                     |
|---------|-------------------------------------|
| GC 0081 | Cereal grains, except pseudocereals |
|---------|-------------------------------------|

#### Subgroup 020A Wheat and Pseudocereals

| <u>Code No.</u> | <u>Commodity</u> |
|-----------------|------------------|
|-----------------|------------------|

|         |                         |
|---------|-------------------------|
| GC 2086 | Wheat and pseudocereals |
|---------|-------------------------|

(includes all commodities in this subgroup)

|         |   |
|---------|---|
| GC 4597 | <b>Acha</b> , see Hungry Rice, GC 0643  |
| GC 4599 | <b>Adlay</b> , see Job's Tears, GC 0644   |
| GC 3080 | <b>Amaranth, grain</b><br><i>Amaranthus</i> spp.  |
| GC 3081 | <b>Amaranth, purple</b><br><i>Amaranthus cruentus</i> L.  |
| GC 0641 | <b>Buckwheat</b><br><i>Fagopyrum esculentum</i> Moench;<br>syn: <i>F. sagittatum</i> Gilib.   |
| GC 3082 | <b>Buckwheat, tartary</b><br><i>Fagopyrum tataricum</i> (L.) Gaertn.  |
| GC 3083 | <b>Canarygrass, annual</b><br><i>Phalaris canariensis</i> L.  |
| GC 0642 | <b>Cañihua</b><br><i>Chenopodium pallidicaule</i> Aellen  |
| GC 3084 | <b>Chia</b><br><i>Salvia hispanica</i> L.   |
| GC 3085 | <b>Cram-cram</b><br><i>Cenchrus biflorus</i> Roxb.  |
| GC 4623 | <b>Durum wheat</b> , see Wheat, GC 0654<br>ssp. <i>Triticum durum</i> Desf.   |
| GC 4625 | <b>Emmer</b> , see Wheat, GC 0654<br>ssp. <i>Triticum dicoccum</i> Schubl.  |
| GC 4631 | <b>Fonio</b> , see Hungry Rice, GC 0643   |
| GC 3086 | <b>Fonio, black</b><br><i>Digitaria iburua</i> Stapf  |
| GC 4635 | <b>Fundi</b> , see Hungry Rice, GC 0643   |
| GC 3087 | <b>Huauzontle</b><br><i>Chenopodium berlandieri</i> Moq. subsp. <i>nuttalliae</i> (Saff.) H. D. Wilson & Heiser<br>and <i>Chenopodium berlandieri</i> |
| GC 0643 | <b>Hungry rice</b><br><i>Digitaria exilis</i> Stapf.; <i>D. iburua</i> Stapf.   |
| GC 3088 | <b>Inca wheat</b>   |

|         |  |
|---------|--|
|         | <i>Amaranthus caudatus</i> L.  |
| GC 0644 | <b>Job's tears</b>   |
|         | <i>Coix lacryma-jobi</i> L.  |
| GC 3091 | <b>Princess –feather</b>   |
|         | <i>Amaranthus hypochondriacus</i> L.   |
| GC3092  | <b>Psyllium</b>  |
|         | <i>Plantago arenaria</i> Waldst. & Kit.  |
| GC 3093 | <b>Psyllium, blond</b>   |
|         | <i>Plantago ovata</i> Forssk.  |
| GC 0648 | <b>Quinoa</b>  |
|         | <i>Chenopodium quinoa</i> Willd.   |
| GC 0650 | <b>Rye</b>   |
|         | <i>Secale cereale</i> L.   |
| GC 4673 | <b>Spelt, see Wheat, GC 0654</b>   |
|         | <i>Triticum spelta</i> L.  |
| GC 0652 | <b>Teff or Tef</b>   |
|         | <i>Eragrostis tef</i> (Zucc.) Trotter;<br>syn: <i>E. abyssinica</i> (Jacq.) Link   |
| GC 0653 | <b>Triticale</b>   |
|         | Hybrid of Wheat and Rye  |
| GC 0654 | <b>Wheat</b>   |
|         | Cultivars of <i>Triticum aestivum</i> L.;<br>syn: <i>T. sativum</i> Lam.; <i>T. vulgare</i> Vill.; <i>Triticum</i> spp., as listed |

#### **Subgroup 020B Barley**

| <u>Code No.</u> | <u>Commodity</u>   |
|-----------------|--|
| GC 2087         | Barley<br>(includes all commodities in this subgroup)      |
| GC 0640         | <b>Barley</b>  |
|                 | <i>Hordeum vulgare</i> L.;<br>syn: <i>H. sativum</i> Pers. |
| GC 0647         | <b>Oats</b>  |

*Avena sativa* L.; *A. abyssinica* Hochst.

GC 4659      **Oat, Red**, see Oats, GC 0647

*Avena byzantina* Koch

**Subgroup 020C Rice**

| <u>Code No.</u> | <u>Commodity</u> |
|-----------------|------------------|
|-----------------|------------------|

|         |   |
|---------|---|
| GC 2087 | Rice<br>(includes all commodities in this subgroup) |
|---------|---|

|         |   |
|---------|---|
| GC 0649 | <b>Rice</b><br><i>Oryza sativa</i> L.; several ssp. and cultivars |
|---------|---|

|         |  |
|---------|--|
| GC 3094 | <b>Rice, African</b><br><i>Oryza glaberrima</i> Steud. |
|---------|--|

|         |  |
|---------|--|
| GC 0655 | <b>Wild rice</b><br><i>Zizania aquatica</i> L. |
|---------|--|

|         |  |
|---------|--|
| GC 3095 | <b>Wild Rice, Eastern</b><br><i>Zizania aquatica</i> |
|---------|--|

**Subgroup 020D Maize, Grain Sorghum and Millet**

| <u>Code No.</u> | <u>Commodity</u> |
|-----------------|------------------|
|-----------------|------------------|

|         |  |
|---------|--|
| GC 2087 | Maize, Grain Sorghum and Millet<br>(includes all commodities in this subgroup) |
|---------|--|

|         |  |
|---------|--|
| GC 4601 | <b>African millet</b> , see Millet, GC0646 |
|---------|--|

|         |   |
|---------|---|
| GC 4603 | <b>Brown-corn millet</b> , see Millet, GC0646 |
|---------|---|

|         |   |
|---------|---|
| GC 4607 | <b>Bulrush millet</b> , see Millet, Bulrush, GC0646 |
|---------|---|

|         |  |
|---------|--|
| GC 4609 | <b>Cat-tail millet</b> , see Millet, Bulrush, GC0646 |
|---------|--|

|         |  |
|---------|--|
| GC 4611 | <b>Chicken corn</b> , see Sorghum, GC 0651<br><i>Sorghum drummondii</i> (Steud.) Millsp. & Chase |
|---------|--|

|         |                                  |
|---------|----------------------------------|
| GC 4613 | <b>Corn</b> , see Maize, GC 0645 |
|---------|----------------------------------|

|         |   |
|---------|---|
| GC 4619 | <b>Dari seed</b> , see Sorghum, GC 0651 |
|---------|---|

|         |  |
|---------|--|
| GC 4621 | <b>Durra</b> , see Sorghum, GC 0651<br>ssp. <i>Sorghum durra</i> (Forsk.) Stapf. |
|---------|--|

|         |  |
|---------|--|
| GC 4627 | <b>Feterita</b> , see Sorghum, GC 0651 |
|---------|--|

|         |   |
|---------|---|
|         | <i>ssp. Sorghum caudatum</i> Stapf.   |
| GC 4629 | <b>Finger millet</b> , see Millet, GC 0646  |
| GC 4633 | <b>Foxtail millet</b> , see Millet, GC 0646   |
| GC 4637 | <b>Guinea corn</b> , see Sorghum, GC 0651<br><i>ssp. Sorghum guineense</i> Stapf.   |
| GC 4639 | <b>Hog millet</b> , see Millet, GC 0646   |
| GC 4641 | <b>Kaffir corn</b> , see Sorghum, GC 0651<br><i>ssp. Sorghum caffrorum</i> Beauv.   |
| GC 4643 | <b>Kaoliang</b> , see Sorghum, GC 0651<br><i>ssp. Sorghum nervosum</i> Bess. ex Schult.   |
| GC 0645 | <b>Maize</b><br><i>Zea mays</i> L., several cultivars, not including Sweet corn   |
| GC 0646 | <b>Millet</b><br>Including Barnyard Millet, Bulrush Millet, Common Millet, Finger Millet, Foxtail Millet, Little Millet; see for scientific names, specific commodities listed as Millet, followed by a specific denomination |
| GC 4645 | <b>Millet, Barnyard</b> , see Millet, GC 0646<br><i>Echinochloa crus-galli</i> (L.) Beauv.;<br>syn: <i>Panicum crus-galli</i> L.;<br><i>E. frumentacea</i> (Roxb.) Link;<br>syn: <i>Panicum frumentaceum</i> Roxb.            |
| GC 4647 | <b>Millet, Bulrush</b> , see Millet, GC 0646<br><i>Pennisetum glaucum</i> (L.) R. Br.<br>syn: <i>P. typhoides</i> (Burm. f.) Stapf. & Hubbard; <i>P. americanum</i> (L.) K. Schum.;<br><i>P. spicatum</i> (L.) Koern.         |
| GC 4649 | <b>Millet, Common</b> , see Millet, GC 0646<br><i>Panicum miliaceum</i> L.  |
| GC 4651 | <b>Millet, Finger</b> , see Millet, GC 0646<br><i>Eleusine coracana</i> (L.) Gaertn.  |
| GC 4653 | <b>Millet, Foxtail</b> , see Millet, GC 0646<br><i>Setaria italica</i> (L.) Beauv.;<br>Syn: <i>Panicum italicum</i> L.; <i>Chaetochloa italica</i> (L.) Scribn.   |
| GC 3089 | <b>Millet, Kodo</b> , see Millet, GC 0646   |

|         |  |
|---------|--|
|         | <i>Paspalum scrobiculatum</i> L.   |
| GC 4655 | <b>Millet, Little</b> , see Millet, GC 0646                                    |
|         | <i>Panicum sumatrense</i> Roth ex Roem & Schult.                               |
| GC 3093 | <b>Millet, Pearl</b> , see Millet, , GC 0646                                   |
| GC 4657 | <b>Milo</b> , see Sorghum, GC 0651   |
|         | ssp. <i>Sorghum subglabrescens</i> Schweinf. & Aschers                         |
| GC 4661 | <b>Pearl millet</b> , see Millet, GC 0646                                      |
| GC 0656 | <b>Popcorn</b>   |
|         | <i>Zea mays</i> L., var. <i>everta</i> Sturt.;                                 |
|         | syn: <i>Zea mays</i> L., var. <i>praecox</i>                                   |
| GC 4665 | <b>Proso millet</b> , see Millet, GC 0646                                      |
| GC 4667 | <b>Russian millet</b> , see Millet, GC 0646                                    |
| GC 4669 | <b>Shallu</b> , see Sorghum, GC 0651   |
|         | ssp. <i>Sorghum roxburghii</i> Stapf.  |
| GC 4671 | <b>Sorgo</b> , see Sorghum, GC 0651  |
| GC 0651 | <b>Sorghum</b>   |
|         | <i>Sorghum bicolor</i> (L.) Moench; several <i>Sorghum</i> ssp. and cultivars  |
| GC 4675 | <b>Spiked millet</b> , see Millet, GC 0646                                     |
| GC 0657 | <b>Teosinte</b>  |
|         | <i>Zea mays</i> ssp. <i>mexicana</i> (Schrader) Iltis;                         |
|         | syn: <i>Zea mexicana</i> (Schrader) Kunze; <i>Euchlaena mexicana</i> Schrader. |

#### **Subgroup 020E Sweet Corn**

| <u>Code No.</u> | <u>Commodity</u>   |
|-----------------|--|
| GC 2086         | Sweet Corn   |
|                 | (includes all commodities in this subgroup)                  |
| GC 4615         | <b>Corn-on-the-cob</b>                                       |
|                 | <i>Zea mays</i> L., several cultivars, not including popcorn |
| GC 4617         | <b>Corn, whole kernel</b>                                    |
|                 | <i>Zea mays</i> L., several cultivars, not including popcorn |
| GC 0447         | <b>Sweet corn</b>  |
|                 | <i>Zea mays</i> L., several cultivars, not including popcorn |

Table 1. Comparison of Codex MRLs and residue levels for GC 0640 Barley and GC 0654Wheat

Note) higher value is *italicized*.

| Pesticide name                            | Codex MRL (mg/kg) |         | Pesticides of which MRLs are estimated according to supervised trials according to the same or similar GAP |                    |                         |              |
|---|-------------------|---------|--|--------------------|-------------------------|--------------|
|   | Wheat             | Barley  | Median residue (mg/kg)   |                    | Highest residue (mg/kg) |              |
|   |                   |         | Wheat  | Barley             | Wheat                   | Barley       |
| Fipronil                                  | 0.002 *           | 0.002 * |  |                    |                         |              |
| Lindane                                   | 0.01 *            | 0.01 *  |  |                    |                         |              |
| Quinoxifen                                | 0.01 *            | 0.01 *  |  |                    |                         |              |
| Quintozene                                | 0.01              | 0.01 *  |  |                    |                         |              |
| Aldicarb                                  | 0.02              | 0.02    |  |                    |                         |              |
| Oxydemeton-Methyl                         | 0.02 *            | 0.02 *  |  |                    |                         |              |
| Clothianidin                              | 0.02 *            | 0.04    |  |                    |                         |              |
| Propiconazole                             | 0.02              | 0.2     | <0.02  | 0.023              | <0.02                   | 0.11         |
| Isoprazam                                 | 0.03              | 0.07    | <0.01  | 0.022              | 0.017                   | 0.035        |
| Kresoxim-Methyl                           | 0.05 *            | 0.1     |  |                    |                         |              |
| Methiocarb                                | 0.05 *            | 0.05 *  |  |                    |                         |              |
| Dimethoate                                | 0.05              | 2       |  |                    |                         |              |
| Diflubenzuron                             | 0.05 *            | 0.05 *  |  |                    |                         |              |
| Thiamethoxam                              | 0.05              | 0.4     |  |                    |                         |              |
| Carbendazim                               | 0.05 *            | 0.5     |  |                    |                         |              |
| Bitertanol                                | 0.05 *            | 0.05 *  |  |                    |                         |              |
| Cyhalothrin (includes lambda-cyhalothrin) | 0.05              | 0.5     | <0.01  | 0.02               | 0.03                    | 0.33         |
| Metrafenone                               | 0.06              | 0.5     | 0.01   | 0.06               | 0.04                    | 0.4          |
| Famoxadone                                | 0.1               | 0.2     |  |                    |                         |              |
| Fenbuconazole                             | 0.1               | 0.2     | <0.02  | 0.03               | 0.06                    | 0.14         |
| Prothioconazole                           | 0.1               | 0.2     | <0.02  | 0.035              | 0.05                    | 0.09         |
| Aminopyralid                              | 0.1               | 0.1     |  |                    |                         |              |
| Penthiopyrad                              | 0.1               | 0.2     | <0.01<br><0.01   | <0.01<br>0.057     | 0.034<br>0.081          | 0.11<br>0.12 |
| Tebuconazole                              | 0.15              | 2       | <0.05  | 0.085              | 0.09                    | 1.1          |
| Azoxystrobin                              | 0.2               | 0.5 a   | 0.01   | 0.08               | 0.14                    | 0.28         |
| Trifloxystrobin                           | 0.2               | 0.5     |  |                    |                         |              |
| Disulfoton                                | 0.2               | 0.2     |  |                    |                         |              |
| Sulfoxaflor                               | 0.2 b             | 0.6 b   | 0.025 b<br>0.015 c   | 0.063 b<br>0.053 c | 0.11 b,c                | 0.32 b,c     |
| Pyraclostrobin                            | 0.2               | 1       |  |                    |                         |              |
| MCPA                                      | 0.2               | 0.2     | <0.05  | <0.05              | 0.16                    | 0.12         |
| Fluxapyroxad                              | 0.3               | 2       | 0.08   | 0.52               | 0.21                    | 1.22         |
| Fenpropimorph                             | 0.5               | 0.5     |  |                    |                         |              |
| Boscalid                                  | 0.5               | 0.5     |  |                    |                         |              |
| Cyprodinil                                | 0.5               | 3       | 0.07   | 0.58               | 0.32                    | 2.0          |
| Ethephon                                  | 1                 | 1       |  |                    |                         |              |
| Dithiocarbamates                          | 1                 | 1       |  |                    |                         |              |
| Dicamba                                   | 2                 | 7       | 0.22   | 1.6                | 1.1                     | 5.0          |
| Diquat                                    | 2                 | 5       |  |                    |                         |              |
| Methomyl                                  | 2                 | 2       | 0.12   | 0.72               | 1.1                     | 1.3          |
| Trinexapac-ethyl                          | 3                 | 3       | 0.65   | 0.57               | 3.32                    | 1.2          |
| Chloromequat                              | 3                 | 2       |  |                    |                         |              |

\* : At or about the limit of determination.  
a : replaced by 1.5 mg/kg in 2014      b: existing JMPR practice      c: global dataset method

Table 2. Comparison of GAPs and residue data on wheat and barley for 16 pesticides evaluated by the JMPR

| Commodity  | Use pattern |                      |     |                     |            | Supervised residue trials on crops |           |               |  |                     |                | Codex MRL (mg/kg) |
|--|-------------|----------------------|-----|---------------------|------------|------------------------------------|-----------|---------------|--|---------------------|----------------|-------------------|
|  | Country     | App. rate (kg ai/ha) | no. | BBCH                | PHI (days) | Country                            | n (total) | n (below LOQ) | Residue data (mg/kg)   | Range (mg/kg)       | Median (mg/kg) |                   |
| Propiconazole (Extracted from 2008 JMPR Evaluation)  |             |                      |     |                     |            |                                    |           |               |  |                     |                |                   |
| Barley   | FR          | 0.125                | 2   | -                   | 42         | FR, DE, CH                         | 24        | 9             | < 0.02 (7), 0.02 (4), 0.025, 0.03, 0.03, 0.03, 0.03, 0.03, 0.04, 0.04, 0.05, 0.1, 0.11 | <0.02-0.11          | 0.0225         | 0.2               |
| Wheat  | FR          | 0.125                | 2   | -                   | 42         | FR, DE, UK                         | 12        | 12            | <0.01 or <0.02   | <0.02 <sup>b)</sup> | <0.02          | 0.02              |
| Rye  | HU          | 0.125                | 2   | -                   | 42         | DE                                 | 2         | 2             | <0.01 or <0.02 <sup>a)</sup>   |                     |                |                   |
| a) Two trials were performed with 2 × 0.125 kg ai/ha application rate. Grain samples taken 48 – 50 days after the second application did not contain detectable parent residues (< 0.01, < 0.02 mg/kg).  |             |                      |     |                     |            |                                    |           |               |  |                     |                |                   |
| b) As the GAP for wheat rye and triticale are the same, and in both commodities the residues were below the LOQ, the Meeting decided to combine residues in wheat and rye.   |             |                      |     |                     |            |                                    |           |               |  |                     |                |                   |
| Isoprazam (extracted from 2011 JMPR Evaluation)  |             |                      |     |                     |            |                                    |           |               |  |                     |                |                   |
| Barley   | UK          | 0.125                | 2   | 30-61 <sup>a)</sup> | -          | North<br>FR, DE, UK                | 8         | 0             | 0.014, 0.016, 0.017, 0.020, 0.024, 0.026, 0.026, 0.035                                 | 0.014 - 0.035       | 0.022          | 0.07              |
| Wheat  | UK          | 0.125                | 2   | 30-71 <sup>b)</sup> | -          | North<br>FR, DE, UK                | 11        | 7             | <0.01 (7), 0.012, 0.012, 0.014, 0.017 <sup>c)</sup>                                    | <0.01 - 0.017       | <0.01          | 0.03              |
| a) before beginning of flowering   |             |                      |     |                     |            |                                    |           |               |  |                     |                |                   |
| b) before grain watery ripe stage  |             |                      |     |                     |            |                                    |           |               |  |                     |                |                   |
| c) In most of the trials, isoprazam was applied three times instead of twice. Therefore, the trials were not in compliance with the GAP of the UK. The isoprazam concentrations in whole plants immediately before the third application were on average about 15% of those on the day of the third application. The Meeting decided to use data from these trials for estimating a maximum residue level in wheat if the contribution of isoprazam from the second application was below 25% of residues after the third application. |             |                      |     |                     |            |                                    |           |               |  |                     |                |                   |
| Note) As GAP for wheat includes uses at the stage nearer to harvest than GAP for barley, pesticide uses following GAPs for wheat is expected to give rise to higher residues in plants. This is reflected in the higher residues in wheat straw (median: 0.952 mg/kg) than those in barley straw (median : 0.356 mg/kg).   |             |                      |     |                     |            |                                    |           |               |  |                     |                |                   |

| Cyhalothrin (includes lambda-cyhalothrin) (extracted from 2008 JMPR Evaluation)   |    |       |                     |                      |                        |                            |    |    |  |              |       |      |
|---|----|-------|---------------------|----------------------|------------------------|----------------------------|----|----|--|--------------|-------|------|
| Barley  | FR | 0.008 | 3                   |                      | 28                     | South<br>ern<br>Euro<br>pe | 29 | 11 | < 0.01(3), 0.01(8),<br>0.02(5), 0.03(4),<br>0.04(4), 0.05, 0.06,<br>0.07, 0.08, 0.33                             | <0.01 - 0.33 | 0.02  | 0.5  |
| Wheat   | FR | 0.008 | 3                   |                      | 28                     | DE                         | 2  | 1  | <0.01, 0.01  | <0.01 - 0.01 | <0.01 | 0.05 |
|   | US | 0.034 |                     |                      | 30                     | US                         | 24 | 19 | <0.01(19),0.01(2),0.0<br>2(2),0.03 <sup>a)</sup>   | <0.01 - 0.03 |       |      |
| a) The Meeting decided to extrapolate the data for wheat grain according to US GAP to make recommendation for oats, rye and triticale grain. The Meeting estimated a maximum residue level and an STMR value for lambda-cyhalothrin in oats, rye, triticale and wheat grain of 0.05 and 0.01 mg/kg, respectively. |    |       |                     |                      |                        |                            |    |    |  |              |       |      |
| Metrafenone (extracted from 2014 JMPR Report)   |    |       |                     |                      |                        |                            |    |    |  |              |       |      |
| Barley  | PL | 0.15  | 2                   |                      | 35                     | Euro<br>pe                 | 20 | 1  | <0.01, 0.02(3), 0.03,<br>0.04, 0.05(3), 0.06,<br>0.06, 0.07, 0.08, 0.09,<br>0.11, 0.13, 0.15, 0.16,<br>0.23, 0.4 | <0.01 - 0.4  | 0.06  | 0.5  |
| Wheat   | PL | 0.15  | 2                   |                      | 35                     | Euro<br>pe                 | 18 | 9  | <0.01(9), 0.01(4),<br>0.02, 0.03, 0.03, 0.04,<br>0.04  | <0.01 - 0.04 | 0.01  | 0.06 |
| Fenbuconazole (extracted from 1997 JMPR Evaluation)   |    |       |                     |                      |                        |                            |    |    |  |              |       |      |
| Barley  | DE | 0.075 | 2                   | -                    | 35                     | DE,                        | 17 | 3  | <0.02(3), 0.03(8),<br>0.04(2), 0.05, 0.08,<br>0.09, 0.14   | <0.02 - 0.14 | 0.03  | 0.2  |
|   | UK | 0.075 | 2                   | GS59<br><sub>a</sub> | -                      | UK,<br>FR                  |    |    |  |              |       |      |
| Wheat   | DE | 0.075 | 2                   | -                    | 35                     | DE,                        | 21 | 20 | <0.01(3), <0.02(17),<br>0.06   | <0.01 - 0.06 | <0.02 | 0.1  |
|   | PT | 0.075 | 2                   |                      | 42                     | PT,<br>UK,                 |    |    |  |              |       |      |
|   | UK | 0.075 | 2                   | GS59<br><sub>a</sub> | -                      | FR,<br>ES,<br>IL           |    |    |  |              |       |      |
| a) before beginning of flowering growth stage 59  |    |       |                     |                      |                        |                            |    |    |  |              |       |      |
| Prothioconazole (extracted from 2009 JMPR Evaluation)   |    |       |                     |                      |                        |                            |    |    |  |              |       |      |
| Barley  | US | 0.2   | 1+1<br><sub>a</sub> |                      | 32 <sup>b,c</sup>      | CA<br>US                   | 10 | 3  | <0.02(3),<br>0.03(2),0.04, 0.05,<br>0.07(2), 0.09  | <0.02 - 0.09 | 0.035 | 0.2  |
| Wheat   | US | 0.2   | 1+1<br><sub>a</sub> |                      | 30 <sup>b,<br/>d</sup> | CA,<br>US                  | 13 | 9  | <0.02(9), 0.02, 0.03,<br>0.04, 0.05  | <0.02 - 0.05 | <0.02 | 0.1  |

|  |       |      |   |                  |    |                        |    |    |   |               |       |                    |
|--|-------|------|---|------------------|----|------------------------|----|----|---|---------------|-------|--------------------|
| a) Maximum rate/ha/year requires at least 1 application at less than the maximum rate/ha   |       |      |   |                  |    |                        |    |    |   |               |       |                    |
| b) Minimum PHI. Harvest interval based on last application at full head emergence (barley) or full flowering (wheat) growth stages |       |      |   |                  |    |                        |    |    |   |               |       |                    |
| c) Up to 5d after full head emergence, Max 330 g ai/ha/year, 14d interval  |       |      |   |                  |    |                        |    |    |   |               |       |                    |
| d) Up to full flower (Feekes 10.52), Max 330 a gi/ha/year, 14d interval  |       |      |   |                  |    |                        |    |    |   |               |       |                    |
| Penthiopyrad (extracted from 2012 JMPR Evaluation)   |       |      |   |                  |    |                        |    |    |   |               |       |                    |
| Barley   | US    | 0.36 | 2 | 59 <sup>a)</sup> | -  | CA, US                 | 13 | 7  | < 0.01(7), 0.01, 0.011, 0.02, 0.024, 0.03, 0.11                           | <0.01 - 0.11  | <0.01 | 0.15 <sup>b)</sup> |
| Wheat  | US    | 0.36 | 2 | 59 <sup>a)</sup> | -  | CA, US                 | 29 | 24 | < 0.01(24), 0.011, 0.012, 0.017, 0.019, 0.034                             | <0.01 - 0.034 | <0.01 | 0.04 <sup>b)</sup> |
| a) before flowering  |       |      |   |                  |    |                        |    |    |   |               |       |                    |
| b) not adopted by CAC  |       |      |   |                  |    |                        |    |    |   |               |       |                    |
| Penthiopyrad (extracted from 2013 JMPR Report)   |       |      |   |                  |    |                        |    |    |   |               |       |                    |
| Barley   | IE UK | 0.3  | 2 | 61               | -  | FR, DE, HU, UK         | 13 | 3  | <0.01(3), 0.01, 0.01, 0.039, 0.057, 0.063, 0.069, 0.071, 0.076, 0.1, 0.12 | <0.01 - 0.12  | 0.057 | 0.2                |
| Wheat  | IE UK | 0.3  | 2 | 71               | -  | FR, DE, HU, UK         | 13 | 9  | <0.01(9), 0.013, 0.015 (2), 0.081   | <0.01 - 0.081 | <0.01 | 0.1                |
| Tebuconazole (extracted from 2011 JMPR Report)   |       |      |   |                  |    |                        |    |    |   |               |       |                    |
| Barley   | FR    | 0.25 | 2 |                  | 28 | FR, DE, GE, IT, PT, ES | 14 | 5  | <0.05(5), 0.07(2), 0.10, 0.38, 0.65, 0.85, 0.93, 0.96, 1.1                | <0.05 - 1.1   | 0.085 | 2                  |
| Wheat  | FR    | 0.25 | 2 |                  | 28 | FR, GE, IT, ES         | 10 | 5  | <0.01, 0.01(2), <0.05(4), 0.06, 0.09                                      | <0.01 - 0.09  | <0.05 | 0.15               |
| Azoxystrobin (extracted from 2008 JMPR Evaluation)   |       |      |   |                  |    |                        |    |    |   |               |       |                    |

|        |                |      |   |    |         |    |    |   |  |              |      |                   |
|--------|----------------|------|---|----|---------|----|----|---|--|--------------|------|-------------------|
| Barley | FR             | 0.25 | 2 |    | 42      | FR | 19 | 0 | 0.01 (3), 0.02 (2), 0.03 (2), 0.04 (2), 0.05, 0.08, 0.09, 0.11 (2), 0.12, 0.13 (3), 0.19 | 0.01 - 0.28  | 0.08 | 0.5 <sup>a)</sup> |
|        | ES             | 0.25 | 2 |    | 36      | ES | 3  | 0 | 0.03, 0.11, 0.28   |              |      |                   |
|        | DE<br>IT<br>NL | 0.25 | 2 |    | 35      | DE | 3  | 0 | 0.02, 0.10, 0.11   |              |      |                   |
|        |                |      |   |    |         | IT | 2  | 0 | 0.08, 0.10   |              |      |                   |
|        |                |      |   |    |         | NL | 1  | 0 | 0.08   |              |      |                   |
|        |                |      |   |    |         | SE | 1  | 0 | 0.20   |              |      |                   |
|        |                |      |   |    |         | CH | 6  | 0 | 0.01, 0.02 (3), 0.03, 0.04   |              |      |                   |
|        | UK             | 0.25 | 2 | 71 | (38-54) | UK | 3  | 0 | 0.13, 0.14, 0.23   |              |      |                   |
| Wheat  | FR             | 0.25 | 2 |    | 42      | FR | 14 | 5 | <0.01 (5), 0.04(4), 0.02, 0.03 (3), 0.14   | <0.01 - 0.14 | 0.01 | 0.2               |
|        | ES             | 0.25 | 2 |    | 36      | ES | 3  | 1 | <0.01, 0.01, 0.04  |              |      |                   |
|        | DE<br>IT<br>NL | 0.25 | 2 |    | 35      | DE | 4  | 1 | <0.01, 0.01, 0.02, 0.04  |              |      |                   |
|        |                |      |   |    |         | IT | 2  | 1 | <0.01, 0.02  |              |      |                   |
|        |                |      |   |    |         | CH | 5  | 5 | <0.01 (5)  |              |      |                   |
|        | UK             | 0.25 | 2 | 71 | (40-59) | UK | 3  | 0 | 0.01, 0.02, 0.03   |              |      |                   |

a) The Codex MRL for Barley was replaced in 2014 by an MRL of 1.5 mg/kg arising from the uses following US GAP.

Sulfoxaflor (extracted from 2011 JMPR Report)

(i) Current JMPR Practice

|        |                                     |      |   |  |    |           |   |   |  |               |       |     |
|--------|-------------------------------------|------|---|--|----|-----------|---|---|--|---------------|-------|-----|
| Barley | AU,<br>CA<br>M,<br>US <sup>a)</sup> | 0.05 | 2 |  | 14 | AU/<br>NZ | 6 | 1 | <0.010, 0.025, 0.050, 0.075, 0.11, 0.32          | <0.010 - 0.32 | 0.063 | 0.6 |
|        |                                     |      |   |  |    | N EU      | 7 | 1 | <0.010, 0.050, 0.057, 0.058, 0.060, 0.079, 0.085 |               |       |     |
|        |                                     |      |   |  |    | S EU      | 6 | 0 | 0.015, 0.042, 0.052, 0.053, 0.055, 0.061         |               |       |     |
|        |                                     |      |   |  |    | US        | 6 | 0 | 0.038, 0.042, 0.044, 0.047, 0.072, 0.088         |               |       |     |
| Wheat  | AU,<br>CA<br>M,<br>US <sup>a)</sup> | 0.05 | 2 |  | 14 | AU/<br>NZ | 6 | 2 | <0.010 (2), 0.015 (2), 0.035, 0.040              | <0.010-0.040  | 0.015 |     |
|        |                                     |      |   |  |    | BR        | 4 | 3 | <0.010 (3), 0.034                                |               |       |     |

|   |                             |            |   |    |    |                                |    |    |  |               |        |                    |
|---|-----------------------------|------------|---|----|----|--------------------------------|----|----|--|---------------|--------|--------------------|
|   |                             |            |   |    |    | N EU                           | 6  | 0  | 0.018, 0.019, 0.023, 0.027, 0.032, 0.11  | 0.018 - 0.11  | 0.025  | 0.2                |
|   |                             |            |   |    |    | S EU                           | 6  | 0  | 0.011, 0.013, 0.014, 0.020, 0.024, 0.056   | 0.011-0.056   | 0.017  |                    |
|   |                             |            |   |    |    | US, CAN                        | 11 | 6  | <0.010 (6), 0.012, 0.015, 0.020, 0.037, 0.063  | <0.010-0.063  | <0.010 |                    |
| a) proposed GAP at the time of evaluation by the 2011 JMPR  |                             |            |   |    |    |                                |    |    |  |               |        |                    |
| (ii) Global Dataset Method  |                             |            |   |    |    |                                |    |    |  |               |        |                    |
| Barley  | AU, CA, M, US <sup>a)</sup> | 0.05       | 2 |    | 14 | AU/ NZ, N EU, S EU, US         | 25 | 2  | <0.010 (2), 0.015, 0.025, 0.038, 0.042, 0.043, 0.044, 0.047, 0.050 (2), 0.052, 0.053, 0.055, 0.057, 0.058, 0.060, 0.061, 0.072, 0.075, 0.079, 0.085, 0.088, 0.11, 0.32 | <0.010 - 0.32 | 0.053  | 0.4 <sup>b)</sup>  |
| Wheat   | AU, CA, M, US <sup>a)</sup> | 0.05       | 2 |    | 14 | AU/ NZ, BR, N EU, S EU, US/C A | 33 | 11 | <0.010 (11), 0.011, 0.012, 0.013, 0.014, 0.015 (3), -.018, 0.019, 0.020 (2), 0.023, 0.024, 0.027, 0.032, 0.034, 0.035, 0.037, -.040, 0.05, 0.063, 0.11                 | <0.010 - 0.11 | 0.015  | 0.15 <sup>b)</sup> |
| b) not adopted by the Codex Alimentarius Commission   |                             |            |   |    |    |                                |    |    |  |               |        |                    |
| MCPA (extracted from 2012 JMPR Evaluation)  |                             |            |   |    |    |                                |    |    |  |               |        |                    |
| Barley  | UK                          | 1.7        | 1 | 30 |    | FR, UK                         | 4  | 4  | <0.05 (4)  | <0.05 - 0.16  | <0.05  | 2                  |
|   | ES                          | 1.2        | 1 | 30 |    | FR, ES                         | 4  | 3  | <0.05 (3), 0.12  |               |        |                    |
| Wheat   | UK                          | 1.7        | 1 | 31 |    | FR, UK                         | 5  | 4  | <0.05 (4), 0.16  |               |        |                    |
|   | ES                          | 1.2        | 1 | 31 |    | FR, ES                         | 4  | 4  | <0.05 (4)  |               |        |                    |
| Note) The Meeting noted that MCPA applied to barley and wheat <u>before flowering</u> results in comparable residues and agreed to combine all data from France and the UK against the UK GAP to support a maximum residue level for grain of barley, oats, rye, triticale and wheat. |                             |            |   |    |    |                                |    |    |  |               |        |                    |
| Fluxapyroxad (extracted from 2012 JMPR Evaluation)  |                             |            |   |    |    |                                |    |    |  |               |        |                    |
| Barley  | US                          | 0.097-0.10 | 2 |    | 21 | US, CA                         | 12 | 1  | <0.01, 0.39 (2), 0.41, 0.50, 0.52 (2), 0.54, 0.82, 0.87, 1.02, 1.22  | <0.01 - 1.22  | 0.52   | 2                  |

|  |    |                          |   |    |    |            |    |   |  |             |      |      |
|--|----|--------------------------|---|----|----|------------|----|---|--|-------------|------|------|
| Wheat  | US | 0.097-0.10               | 2 |    | 21 | US, CA     | 20 | 0 | 0.03 (2), 0.05 (4), 0.06 (3), 0.07, 0.08, 0.09, 0.10, 0.11 (2), 0.12 (2), 0.13, 0.19, 0.21   | 0.03 - 0.21 | 0.08 | 0.30 |
| Cyprodinil (Extracted from 2003 JMPR Report)   |    |                          |   |    |    |            |    |   |  |             |      |      |
| Barley   | FR | 0.48                     |   | a) |    | FR, DE     | 41 | 1 | <0.02,0.07,0.09,0.11,0.13,0.14,0.18,0.22,0.24,0.25,0.28,0.31,0.32,0.36,0.40,0.44,0.48,0.54,0.55,0.58,0.58,0.65,0.67,0.73,0.74,0.74,0.75,0.76,0.77,0.93,1.1,1.2,1.2,1.3,1.3,1.4,1.5,1.8,2.0 <sup>b)</sup> | <0.02-2.0   | 0.58 | 3.0  |
| Wheat  | FR | 0.6                      |   | c) |    | FR, DE, CH | 29 | 2 | <0.02,<0.02,0.02,0.02,0.03(3),0.04,0.05,0.052,0.06(3),0.07(3),0.08,0.08,0.10,0.10,0.11,0.11,0.13(3),0.14,0.16,0.32 <sup>d)</sup>   | <0.02-0.32  | 0.07 | 0.50 |
| a) Use until end of earing. The instruction was interpreted as a PHI of approximately 35-50 days for the purpose of evaluating the trials.   |    |                          |   |    |    |            |    |   |  |             |      |      |
| b) Trials in France and Germany were considered to comply with French GAP with application rates in the range of 0.36-0.61 kg ai/ha and with PHIs of 40-50 days.                     |    |                          |   |    |    |            |    |   |  |             |      |      |
| c) Use until end of earing. The instruction was interpreted as a PHI of approximately 45-60 days for the purpose of evaluating the trials.   |    |                          |   |    |    |            |    |   |  |             |      |      |
| d) Trials in France, Germany, Switzerland and the UK were considered to conform to French GAP with application rates in the range of 0.45-0.75 kg ai/ha and with PHIs of 42-61 days. |    |                          |   |    |    |            |    |   |  |             |      |      |
| s  |    |                          |   |    |    |            |    |   |  |             |      |      |
| Dicamba (extracted from 2010 JMPR Evaluation)  |    |                          |   |    |    |            |    |   |  |             |      |      |
| Barley   | US | 0.14 (1st)<br>0.28 (2nd) | 2 |    | 7  | US         | 10 | 0 | 0.78, 1.1, 1.1, 1.5, 1.6, 1.6, 1.8, 2.7, 2.8, 5.0  | 0.78 - 5.0  | 1.6  | 7    |
| Wheat  | US | 0.28 (1st)<br>0.28 (2nd) | 2 |    | 7  | US         | 20 | 0 | 0.05, 0.07, 0.08, 0.11, 0.11, 0.11, 0.16, 0.19, 0.19, 0.25, 0.29, 0.34, 0.35, 0.47, 0.53, 0.81, 0.84, 1.1  | 0.05 - 1.1  | 0.22 | 2    |
| Methomyl (extracted from 2001 JMPR Evaluation)   |    |                          |   |    |    |            |    |   |  |             |      |      |
| Barley   | US | 0.5                      | 4 |    | 7  | US         | 3  | 0 | 0.12, 0.72, 1.3  | <0.02 - 1.3 | 0.14 | 2    |
| Wheat  | US | 0.5                      | 4 |    | 7  | US         | 15 | 4 | <0.02 (4), 0.02 (2), 0.06, 0.12, 0.14, 0.17 (3), 0.40, 0.69, 1.1   |             |      | 2    |
| Trinexapac-ethyl (extracted from 2013 JMPR Report)   |    |                          |   |    |    |            |    |   |  |             |      |      |

|  |    |       |   |  |    |    |    |   |   |           |      |   |
|--|----|-------|---|--|----|----|----|---|---|-----------|------|---|
| Barley   | US | 0.123 | 1 |  | 45 | US | 12 | 0 | 0.03, 0.08, 0.44, 0.50, 0.52, 0.53, 0.60, 0.72, 0.76, 0.83, 1.0, 1.2 a)                                       | 0.03-1.2  | 0.57 | 3 |
| Wheat  | US | 0.123 | 1 |  | 45 | US | 18 | 0 | 0.07, 0.15, 0.27, 0.31, 0.32, 0.40, 0.45, 0.47, 0.53, 0.77, 0.78, 0.82, 0.85, 0.99, 1.01, 1.14, 1.64, 3.32 a) | 0.07-3.32 | 0.65 | 3 |
| a) total residues of trinexapac acid (residue definition for estimation of dietary intake for plant commodities) |    |       |   |  |    |    |    |   |   |           |      |   |

## Annex:

### Recent JMPR evaluations of six pesticides used in wheat and barley

The results of recent JMPR evaluations of six active substances (three fungicides, one herbicide, one insecticide, and one plant growth regulator) regarding their use on wheat and barley are presented in the study.

#### **Metrafenone (278) (JMPR 2014)**

Metrafenone is a fungicide. It is the ISO-approved common name for (3-bromo-6-methoxy-2-methylphenyl) (2,3,4-trimethoxy-6-methylphenyl)-methanone (IUPAC), for which the CAS No is 220899-03-6.

##### "Cereal grains

Results from supervised trials on wheat and barley conducted in Europe were provided to the Meeting.

##### Wheat

The critical GAP for metrafenone on wheat is in Poland, up to 2 foliar applications of 0.15 kg ai/ha with a PHI of 35 days. In trials in Europe matching this GAP in Poland, metrafenone residues in wheat grain were: < 0.01 (9), 0.01 (4), 0.02, 0.03, 0.03, 0.04 and 0.04 mg/kg (n=18).

The Meeting estimated an STMR of 0.01 mg/kg and a maximum residue level of 0.06 mg/kg for metrafenone on wheat. The Meeting also agreed to extrapolate these estimations to rye and triticale.

##### Barley

The critical GAP for metrafenone on barley is in Poland, up to 2 foliar applications of 0.15 kg ai/ha with a PHI of 35 days. In trials in Europe matching this GAP in Poland, metrafenone residues in barley grain were: < 0.01, 0.02 (3), 0.03, 0.04, 0.05 (3), 0.06, 0.06, 0.07, 0.08, 0.09, 0.11, 0.13, 0.15, 0.16, 0.23 and 0.4 mg/kg (n=20).

The Meeting estimated an STMR of 0.06 mg/kg and a maximum residue level of 0.5 mg/kg for metrafenone on barley. The Meeting also agreed to extrapolate these estimations to oats."

#### **Result**

Based on an identical GAP on wheat and barley and a comparable residue data set JMPR concluded in 2014 that different STMR, HR (as no ARfD was derived only virtual values) and MRL values should be derived.

|               | STMR       | HR         | MRL        |
|---------------|------------|------------|------------|
| Wheat (n=18)  | 0.01 mg/kg | 0.04 mg/kg | 0.06 mg/kg |
| Barley (n=20) | 0.06 mg/kg | 0.4 mg/kg  | 0.5 mg/kg  |

### **Penthiopyrad (253) (JMPR 2012, 2013)**

Penthiopyrad is a fungicide. The IUPAC name of penthiopyrad is (RS)-N-[2-(1,3-dimethylbutyl)-3-thienyl]-1-methyl-3-(trifluoromethyl) pyrazole-4-carboxamide and the CA name is N-[2-(1,3-dimethylbutyl)-3-thienyl]-1-methyl-3-(trifluoromethyl)-1H-pyrazole-4-carboxamide (9CI).

### **JMPR 2012**

#### **"Rye, triticale and wheat**

Residue data were provided to the Meeting from trials in Canada and the USA on wheat grain. GAP for rye, triticale and wheat in the USA is for a maximum of two foliar applications before flowering (BBCH 59) of up to 0.36 kg ai/ha without a specified PHI for the grain (covered by growth stage).

Residues of parent penthiopyrad in wheat grain were (n=29): < 0.01(24), 0.011, 0.012, 0.017, 0.019 and 0.034 mg/kg.

The total residues in wheat grain were (n=29): < 0.01(24), 0.030, 0.033, 0.036, 0.037 and 0.053, mg/kg.

The Meeting recognized that wheat, triticale and rye share an identical GAP and normally show comparable residues. It was therefore decided to extrapolate residue data from wheat to rye and triticale.

The Meeting estimated a maximum residue level and an STMR of 0.04 mg/kg and 0.01 mg/kg for penthiopyrad in rye, triticale and wheat, respectively.

#### **Barley and oats**

Residue data were provided to the Meeting from trials in Canada and the USA on barley grain. GAP for barley and oats in the USA is for a maximum of two foliar applications before flowering (BBCH 59) of up to 0.36 kg ai/ha without a specified PHI for the grain (covered by growth stage).

Residues of parent penthiopyrad in barley grain were (n=13): < 0.01(7), 0.01, 0.011, 0.02, 0.024, 0.03 and 0.11 mg/kg.

The total residues in barley grain were (n=13): < 0.01(7), 0.029, 0.029, 0.038, 0.042, 0.048 and 0.14 mg/kg.

The Meeting recognized that barley and oats share an identical GAP and normally show comparable residues. It was therefore decided to extrapolate residue data from barley to oats.

The Meeting estimated a maximum residue level and an STMR of 0.15 mg/kg and 0.01 mg/kg for penthiopyrad in barley and oats, respectively."

### **JMPR 2013**

#### **"Wheat, rye and triticale**

In Ireland and the UK penthiopyrad is registered for the use on rye, triticale and wheat with two foliar application up to 0.3 kg ai/ha each. The PHI is covered by a specified growth stage (BBCH 71). Supervised residue trials approximating this GAP were submitted to the 2012 Meeting from France, Germany, Hungary and UK.

For the purposes of MRL estimations penthiopyrad residues in wheat grain were (n=13): < 0.01(9), 0.013, 0.015, 0.015, 0.081 mg/kg.

For the dietary intake purposes the total residues in wheat grain were (n=13): < 0.01(9), 0.033, 0.035, 0.035, 0.1 mg/kg.

The Meeting recognized that wheat, rye and triticale share an identical GAP and decided to extrapolate residue data from wheat to rye and triticale.

The Meeting estimated a maximum residue level of 0.1 mg/kg and confirmed its previous estimate of an STMR of 0.01 mg/kg for penthiopyrad in wheat, rye and triticale, respectively, replacing its previous recommendation of a maximum residue level of 0.04 mg/kg for wheat, rye and triticale.

#### Barley and oats

In Ireland and the UK penthiopyrad is registered for the use on barley and oats with two foliar application up to 0.3 kg ai/ha each. The PHI is covered by a specified growth stage (BBCH 61). Supervised residue trials approximating this GAP were submitted to the 2012 Meeting from France, Germany, Hungary and the UK.

For the purposes of MRL estimations penthiopyrad residues in barley grain were (n=14): < 0.01(3), 0.01, 0.01, 0.039, 0.057, 0.063, 0.069, 0.071, 0.076, 0.1, 0.12 mg/kg.

For the dietary intake purposes the total residues in barley grain were (n=14): < 0.01(3), 0.03, 0.03, 0.059, 0.083, 0.089, 0.091, 0.096, 0.1, 0.12, 0.14 mg/kg.

The Meeting recognized that barley and oats share an identical GAP and decided to extrapolate residue data from barley to oats.

The Meeting estimated a maximum residue level and an STMR of 0.2 mg/kg and 0.086 mg/kg for penthiopyrad in barley and oats, respectively, replacing its previous recommendation of a maximum residue level of 0.15 mg/kg for barley and oats."

## **Result**

In 2012 residue trial data were assessed for an identical GAP on wheat and barley in the USA. The use was before flowering with a higher MRL estimate for barley. In 2013 residue trial data were assessed for a GAP on wheat and barley in Ireland and the UK. While the application on wheat and barley was identical (twice 0.3 kg ai/ha) the PHI differed. It was shorter for wheat (BBCH 71) than for barley (BBCH 61), nearly the same as for the US GAP assessed in 2012 (BBCH59)). The results showed the expected tendency to higher residues for the later application rates even for the small shift on barley from BBCH 59 to 61. Despite the larger shift in the growth stage on wheat in 2013 compared to 2012, the MRL estimate for barley was still higher than for wheat.

|               | STMR        | HR          | MRL        |
|---------------|-------------|-------------|------------|
| 2012          |             |             |            |
| Wheat (n=29)  | 0.01 mg/kg  | 0.081 mg/kg | 0.04 mg/kg |
| Barley (n=13) | 0.01 mg/kg  | 0.11 mg/kg  | 0.15 mg/kg |
| 2013          |             |             |            |
| Wheat (n=13)  | 0.01 mg/kg  | 0.04 mg/kg  | 0.1 mg/kg  |
| Barley (n=14) | 0.086 mg/kg | 0.12 mg/kg  | 0.2 mg/kg  |

### **Trinexapac-ethyl (271) (JMPR 2013)**

Trinexapac-ethyl is a plant growth regulator. It is the ISO-approved common name for 4-(cyclopropyl- $\alpha$ -hydroxymethylene)-3,5-dioxo-cyclohexanecarboxylic acid ethyl ester (IUPAC), with CAS No 95266-40-3.

#### **"Cereals - wheat**

Residue trials were conducted in wheat in the USA according to the critical GAP in the USA (1 application at 0.123 kg ai/ha, 45-day PHI).

For the estimation of maximum residue levels the ranked order of residues of trinexapac acid in wheat grain from supervised trials according to the GAP in the USA was 0.10, 0.25, 0.32, 0.34, 0.35, 0.46, 0.49, 0.55, 0.55, 0.57, 0.77, 0.88, 0.91, 0.98, 0.99, 1.05, 1.35 and 1.95 mg/kg.

The Meeting estimated a maximum residue level for trinexapac acid in wheat of 3 mg/kg.

The Meeting recognized that wheat (spring wheat, winter wheat and durum wheat) and triticale, barley and oats have similar GAPs and normally show comparable residues after early treatment. As application was before flowering, the Meeting decided to extrapolate the MRL estimated for wheat grain to barley, oats and triticale.

#### **Cereals - barley**

Residue trials were conducted in barley in the USA according to the GAP in the USA (1 application at 0.123 kg ai/ha, 45-day PHI).

For dietary intake purposes, the ranked order of total residues of trinexapac acid in barley grain from supervised trials according to the GAP in the USA was 0.03, 0.08, 0.44, 0.50, 0.52, 0.53, 0.60, 0.72, 0.76, 0.83, 1.0 and 1.2 mg/kg."

### **Result**

The proposal made by JMPR to extrapolate the MRL estimated for wheat grain to barley, oats and triticale was verified by the available data on wheat and barley.

The outcome is not in contradiction with the EU extrapolation rules.

### **Fluxapyroxad (256) (JMPR 2012)**

Fluxapyroxad is a fungicide. It is the ISO-approved name for 3-(fluoromethyl)-1-methyl-N-(3',4',5'-trifluoro[1,1'-biphenyl]-2-yl)-1H-pyrazole-4-carboxamide (IUPAC) (CAS No 907204-31-3).

#### **"Wheat and triticale**

Residue trials were conducted in wheat in Brazil, in which three applications were made at 60 g ai/ha at 15 day intervals. Sampling was performed at a 30 day PHI in two trials and 0, 7, 15, 30 and 45 day PHI in two decline trials. The GAP in Brazil is 3 or 4 applications at 60 g ai/ha, 30 day PHI, 15–20 day interval between applications).

The ranked order of residues of fluxapyroxad (and total residues) in wheat grain from supervised trials collected 30 days after the last application were: 0.02, 0.03, 0.04 and 0.08 mg/kg.

Residue trials were conducted in wheat or triticale in various countries in Europe (Germany, the UK, France, Spain and Italy) in each of two growing seasons, matching a GAP in Europe. (GAP in various European countries is 2 applications at 125g ai/ha, 35 day PHI (France) or in the United Kingdom no PHI required if application is at or before GS 69). Residues data were collected at PHIs ranging from 34–60 days.

The ranked order of residues of fluxapyroxad (and total residues) in wheat or triticale (t) grain, from supervised trials in Europe collected 34–60 days after the last application, were: < 0.01 (t), 0.01, 0.01, 0.01, 0.01, 0.02 (t), 0.02 (t), 0.02, 0.02, 0.03 (t), 0.03, 0.03, 0.04, 0.04, 0.05 and 0.06 mg/kg.

Residue trials were conducted in wheat at four locations in Australia in which 2 applications were made at 61–62g ai/ha or 122–124g ai/ha. There is no corresponding GAP.

Residue trials were conducted in wheat in the USA and Canada according to the GAP in the USA (2 applications at 97–100g ai/ha, 21 day PHI). The residues of fluxapyroxad in wheat grain from supervised trials corresponding to GAP, in ranked order, were: 0.03, 0.03, 0.05, 0.05, 0.05, 0.05, 0.06, 0.06, 0.06, 0.07, 0.08, 0.09, 0.10, 0.11, 0.11, 0.12, 0.12, 0.13, 0.19 and 0.21 mg/kg.

The total residues in wheat grain from supervised trials corresponding to GAP, in ranked order were: 0.03, 0.03, 0.05, 0.05, 0.05, 0.06, 0.06, 0.06, 0.07, 0.08, 0.09, 0.09, 0.11, 0.11, 0.12, 0.13, 0.13, 0.15, 0.19 and 0.21 mg/kg.

The data from the USA and Canada were used to estimate a maximum residue level and STMR for wheat grain.

The Meeting estimated maximum residue level and STMR values for fluxapyroxad in wheat grain of 0.3 and 0.085 mg/kg respectively.

The Meeting recognized that wheat, rye and triticale share an identical GAP and normally show comparable residues. The Meeting agreed to apply the maximum residue level and STMR recommended for fluxapyroxad from wheat to rye and triticale.

#### **Barley**

Residue trials were conducted in barley in Brazil matching the GAP in Brazil (2 applications at 60 g ai/ha, 30 day PHI, 15–20 day interval between applications).

The residues of fluxapyroxad in barley grain from supervised trials according to the GAP in Brazil were: 0.09, 0.14, 0.15 and 0.28 mg/kg.

The ranked order of total residues of fluxapyroxad in barley grain from supervised trials according to the GAP in Brazil were: 0.09, 0.14, 0.15 and 0.30 mg/kg.

Residue trials were conducted in barley in various European countries (Germany, the Netherlands, France, the UK, Greece, Spain and Italy) in each of two growing seasons, according to the GAP in Europe. (GAP in European countries is 2 applications at 125g ai/ha, 35 day PHI (France) or in the United Kingdom not required if application is at or before GS 69). Trials were also run at a lower rate of application (77–90g ai/ha). Residues data were collected at PHIs ranging from 29–63 days.

The ranked order of residues of fluxapyroxad in barley grain, from supervised trials in Europe collected 35–63 days after the last application, were: 0.02, 0.05, 0.08, 0.09, 0.09, 0.10, 0.10, 0.13, 0.15, 0.17, 0.18, 0.19, 0.23, 0.23, 0.24 and 0.41 mg/kg.

The ranked order of total residues in barley grain, from supervised trials in Europe collected 29–63 days after the last application, were: 0.02, 0.05, 0.08, 0.09, 0.09, 0.10, 0.10, 0.13, 0.16, 0.17, 0.18, 0.19, 0.23, 0.23, 0.24 and 0.45 mg/kg.

Residue trials were conducted in barley in Australia according to the GAP in Australia (2 applications at 62.5g ai/ha). The residues of fluxapyroxad (and total residues) in barley grain from supervised trials collected at harvest were 0.03 and 0.05 mg/kg.

Residue trials were conducted in barley in the USA and Canada according to the critical GAP in the USA (2 applications at 97–100g ai/ha, 21 day PHI).

The residues of fluxapyroxad in barley grain from supervised trials approximating GAP, in ranked order, were: < 0.01, 0.39, 0.39, 0.41, 0.50, 0.52, 0.52, 0.54, 0.82, 0.87, 1.02 and 1.22 mg/kg.

The total residues in barley grain from supervised trials approximating US GAP were: < 0.01, 0.39, 0.41, 0.44, 0.51, 0.53, 0.54, 0.54, 0.84, 0.87, 1.02 and 1.26 mg/kg.

The data from the USA and Canada were used to estimate a maximum residue level and STMR for barley grain.

The Meeting estimated maximum residue level and STMR values for fluxapyroxad in barley grain of 2 and 0.535 mg/kg respectively.

#### Oats

Residue trials were conducted in oats in Brazil according to the GAP in Brazil (2 applications at 60 g ai/ha, 30 day PHI, 15–20 day interval between applications).

The residues of fluxapyroxad and (total residues) in oat grain from supervised trials collected 30 days after the last application were < 0.01, < 0.01, 0.05 and 0.28 mg/kg.

The Meeting considered that there were insufficient data reflecting the GAP for fluxapyroxad on oats in Brazil to estimate an appropriate maximum residue level. In addition the GAP in Brazil is less critical than the GAP in the USA (2 applications at 97–100g ai/ha, 21 day PHI).

The Meeting recognized that barley and oats share an identical GAP and normally show

comparable residues. It was therefore decided to apply the maximum residue level and STMR recommended for fluxapyroxad on barley to oats (2 and 0.535 mg/kg respectively)."

## Results

The residue trial data representing the Brazilian GAP on barley and oats support the current extrapolation rule from barley to oats. Nevertheless, the Brazilian GAP on barley and wheat was neither identical nor the critical GAP.

The worst GAP considered was a US GAP. Here, the GAP on wheat and barley was identical. The MRL estimate for barley was higher than the one for wheat.

|               | STMR        | HR         | MRL       |
|---------------|-------------|------------|-----------|
| Wheat (n=20)  | 0.085 mg/kg | 0.21 mg/kg | 0.3 mg/kg |
| Barley (n=12) | 0.535 mg/kg | 1.26 mg/kg | 2 mg/kg   |

### **MCPA (257) (JMPR 2012)**

MCPA is a herbicide. It is the ISO-approved common name for 4-chloro-o-tolxyloxyacetic acid (IUPAC) (CAS No 94-76-6).

#### **"Barley and wheat**

The GAP for the UK is for one spray application at 1.7 kg ae/ha at BBCH 30(DMA salt SL formulation). Four barley trials were conducted in France and the UK matching the GAP of the UK. In the trials residues in barley grain were < 0.05 (4) mg/kg.

The GAP in Spain (DMA salt SL formulation), is for one spray application at 1.2 kg ae/ha at BBCH 30. Four barley trials were conducted in France and Spain in line with Spanish GAP. The residues in barley were: < 0.05 (3) and 0.12 mg/kg.

The GAP for the UK is for one spray application at 1.7 kg ae/ha at BBCH 31 (DMA salt SL formulation). Five wheat trials were conducted in France and the UK in line with the UK GAP. The residues in wheat were: < 0.05 (4) and 0.16 mg/kg.

The GAP in Spain consists of one spray application at 1.2 kg ae/ha at BBCH 31 (Sodium or potassium salt SL formulation). Four wheat trials were conducted in France and Spain in line with Spanish GAP. Residues found in wheat grain were: < 0.05 (4) mg/kg.

The Meeting noted that MCPA applied to barley and wheat before flowering results in comparable residues and agreed to combine all data from France and the UK against the UK GAP to support a maximum residue level for grain of barley, oats, rye, triticale and wheat. The residues found, median underlined, were: < 0.05(11) and 0.16 mg/kg.

The Meeting estimated a maximum residue level and an STMR in the cereals grains barley, oats, rye, triticale and wheat of 0.2 and 0.05 mg/kg, respectively.

### **Result**

The proposal made by JMPR to extrapolate the MRL estimated for wheat grain to barley was based on the available data. As the use was early in the growing season, the result is not surprising.

The outcome is not in contradiction with the EU extrapolation rules.

### **Sulfoxaflor (252) JMPR 2011)**

Sulfoxaflor is an insecticide. It is the ISO–approved name for [methyl(oxo){1-[6-(trifluoromethyl)-3-pyridyl]ethyl}-λ6-sulfanylidene]cyanamide (International Union of Pure and Applied Chemistry) (Chemical Abstracts Service No 946578-00-3).

#### **"Wheat**

The proposed GAP for wheat allows the use of sulfoxaflor with two foliar applications at 0.05 kg ai/ha, a 14-day RTI, and a 14-day PHI for grain and straw [7-day PHI for forage and hay].

A total of 33 trials on wheat grain were available from Australia/New Zealand (6), Brazil (4), Northern Europe (6), Southern Europe (6) and USA/Canada (11).

Residues of sulfoxaflor, in ranked order, found in wheat grain from Australia/New Zealand were: < 0.010 (2), 0.015 (2), 0.035, and 0.040 mg/kg.

Residues of sulfoxaflor, in ranked order, found in wheat grain from Brazil were: < 0.010 (3) and 0.034 mg/kg.

Residues of sulfoxaflor, in ranked order, found in wheat grain from Northern Europe were: 0.018, 0.019, 0.023, 0.027, 0.032, and 0.11 mg/kg.

Residues of sulfoxaflor, in ranked order, found in wheat grain from Southern Europe were: 0.011, 0.013, 0.014, 0.020, 0.024, and 0.056 mg/kg.

Residues of sulfoxaflor, in ranked order, found in wheat grain from USA/Canada were: < 0.010 (6), 0.012, 0.015, 0.020, 0.037, and 0.063 mg/kg.

The Meeting observed that sulfoxaflor residues were highest in wheat trials from Northern Europe, and decided to estimate maximum residue levels based on this data set. The Meeting estimated a maximum residue level of 0.2 mg/kg for sulfoxaflor on wheat grain. The Meeting estimated an STMR value of 0.025 mg/kg for sulfoxaflor residues in wheat grain.

Noting that the proposed GAP includes triticale with the same use pattern as wheat and barley, the Meeting decided to extrapolate the estimated maximum residue level and STMR value for wheat to triticale."

#### **"Barley**

The proposed GAP for barley is for two foliar applications of sulfoxaflor at 0.05 kg ai/ha, a 14-day RTI, and a 14-day PHI for grain and straw [7-day PHI for forage and hay].

A total of 25 trials on barley grain were available from Australia/New Zealand (6), Northern Europe (7), Southern Europe (6), and the USA (6).

Residues of sulfoxaflor, in ranked order, found in barley grain from Australia/New Zealand were: < 0.010, 0.025, 0.050, 0.075, 0.11, and 0.32 mg/kg.

Residues of sulfoxaflor, in ranked order, found in barley grain from Northern Europe were: < 0.010, 0.050, 0.057, 0.058, 0.060, 0.079, and 0.085 mg/kg.

Residues of sulfoxaflor, in ranked order, found in barley grain from Southern Europe were: 0.015, 0.042, 0.052, 0.053, 0.055, and 0.061 mg/kg.

Residues of sulfoxaflor, in ranked order, found in barley grain from the USA were: 0.038, 0.043, 0.044, 0.047, 0.072, and 0.088 mg/kg.

The Meeting noted that sulfoxaflor residues were highest in barley trials from Australia/New Zealand, and decided to estimate maximum residue levels on this data set. The Meeting estimated a maximum residue level of 0.6 mg/kg and a STMR value of 0.063 mg/kg for sulfoxaflor residues in barley grain.”

## **Result**

The GAP assessed was identical in several states or regions, respectively. The differences if comparing states/regions are less distinctive to the fungicides above.

Australia/New Zealand: higher residues in barley compared to wheat

Northern Europe: higher residues in barley compared to wheat

Southern Europe: higher residues in barley compared to wheat

USA: higher residues in barley compared to wheat

Due to the low number of results and the higher number of results in wheat compared to barley, the Mann-Whitney U-Test indicated only differences between wheat and barley for the US results. The same applied to the Kruskal-Wallis H-Test. The later test also showed no difference between the European results (wheat, barley, north, south). Interestingly, this changes if the barley and wheat data from Europe are pooled. In this case, a difference between the two data sets is indicated.

Nevertheless, when using the highest residue population from the different data sets, as done by the JMPR, different MRL proposals result.